Division of Land / Environmental Review

City Hall • 200 N. Spring Street, Room 750 • Los Angeles, CA 90012

FINAL ENVIRONMENTAL IMPACT REPORT
Volume 12
Appendix FEIR-3 through Appendix FEIR-13

NBC Universal Evolution Plan

ENV-2007-0254-EIR

STATE CLEARINGHOUSE NO. 2007071036

Council District 4

THIS DOCUMENT COMPRISES THE SECOND AND FINAL PART OF THE ENVIRONMENTAL IMPACT REPORT (EIR) FOR THE PROJECT DESCRIBED. THE DRAFT EIR (VOLUMES 1 THROUGH 27) WHICH WAS PREVIOUSLY CIRCULATED FOR PUBLIC REVIEW AND COMMENT, COMPRISES THE FIRST PART.

Project Address: 100 Universal City Plaza, Universal City, CA 91608

Project Description: Universal City Studios LLLP, L.P., proposes the NBC Universal Evolution Plan (the "Project"), which sets forth the framework to guide the development of an approximately 391-acre site located in the east San Fernando Valley near the north end of the Cahuenga Pass (the "Project Site"). The Project, as proposed, would involve a net increase of approximately 2.01 million square feet of new commercial development, which includes 500 hotel guest rooms and related hotel facilities. In addition, a total of 2,937 dwelling units would be developed. Implementation of the proposed Project would occur pursuant to the development standards set forth in two proposed Specific Plans. The proposed Universal City Specific Plan addresses development within the portion of the Project Site located within the City of Los Angeles, whereas the proposed Universal Studios Specific Plan addresses development within the portion of the Project Site located under the jurisdiction of the County of Los Angeles. Under the proposed Project, portions of the Project Site that are currently in the County of Los Angeles would be annexed into the City of Los Angeles, while other areas would be detached from the City of Los Angeles and returned to the jurisdiction of the County of Los Angeles. The proposed annexation/detachment reflects the Applicant's objective to establish jurisdictional boundaries that follow existing and planned on-site land use patterns.

APPLICANT:
Universal City Studios LLLP, L.P.

PREPARED BY:
Environmental Review Section
Los Angeles City Planning Department

July 2012

Appendix FEIR-3

Supplemental Intersection Level of Service Tables and Worksheets

TABLE F-1
EXISTING CONDITIONS
CITY OF BURBANK INTERSECTIONS - PEAK HOUR LEVELS OF SERVICE

No.		Intersection	Peak Hour	V/C	LOS
74.		Pass Avenue & Magnolia Boulevard	A.M. P.M.	0.406 0.529	A A
75.		Pass Avenue & Verdugo Lane	A.M. P.M.	0.477 0.590	A A
76.		Pass Avenue & Oak Street	A.M. P.M.	0.369 0.425	A A
77.	[a]	Evergreen Street/Riverside Drive & Alameda Avenue	A.M. P.M.	0.530 0.595	A A
78.		Pass Avenue & SR 134 EB Off-Ramp	A.M. P.M.	0.499 0.508	A A
79.	[a]	Pass Avenue & Alameda Avenue	A.M. P.M.	0.599 0.713	A C
80.	[a]	Pass Avenue & Riverside Drive	A.M. P.M.	0.461 0.363	A A
81.	[a]	Olive Avenue & Pass Avenue	A.M. P.M.	0.673 0.747	B C
82.	[a]	Olive Avenue & Warner Brothers Studios Gate 2/Gate 3	A.M. P.M.	0.430 0.501	A A
83.	[a]	Olive Avenue & Warner Brothers Studios Gate 1/Lakeside Drive	A.M. P.M.	0.655 0.744	B C
84.	[a]	Hollywood Way & Alameda Avenue	A.M. P.M.	0.773 0.749	C C
85.	[a]	Cordova Street/SR 134 WB Off-Ramp & Alameda Avenue	A.M. P.M.	0.641 0.503	B A
86.	[a]	Hollywood Way & Olive Avenue	A.M. P.M.	0.550 0.681	A B
87.	[a]	Olive Avenue & Riverside Drive	A.M. P.M.	0.602 0.572	B A
88.	[a]	Lima Street & Olive Avenue	A.M. P.M.	0.434 0.396	A A
89.	[a]	Olive Avenue & Alameda Avenue	A.M. P.M.	0.569 0.710	A C
90.		California Street & Riverside Drive	A.M. P.M.	0.335 0.353	A A
91.	[a]	Bob Hope Drive & Alameda Avenue	A.M. P.M.	0.622 0.636	B B
92.	[a]	Buena Vista Street & Alameda Avenue	A.M. P.M.	0.750 0.838	C D
93.		Buena Vista Street/SR 134 EB On-Ramp & Riverside Drive/SR 134 WB Ramps	A.M. P.M.	0.777 0.809	C D
94.	[b]	SR 134 EB On-Ramp/Screenland Drive & Riverside Drive	A.M. P.M.	0.671 0.562	B A
95.	[a]	Buena Vista Street & Olive Avenue	A.M. P.M.	0.796 0.776	C C
153.	[a]	Hollywood Way & Verdugo Avenue	A.M. P.M.	0.814 0.800	D C
154.	[a]	Hollywood Way & Magnolia Boulevard	A.M. P.M.	0.806 0.869	D D

Notes:

[a] Intersection is connected to the City of Burbank's Traffic Signal Interconnect & Signal Timing System. A credit of 0.02 in V/C ratio was included in the analysis.

[b] Intersection is uncontrolled. Analysis was done using 2000 Highway Capacity Manual Two-Way Stop-Controlled methodology. For the purpose of evaluating the operating conditions of the intersection, level of service is based on average vehicular delay in seconds for the most constrained approach rather than V/C ratio.

TABLE F-1 (continued)
EXISTING CONDITIONS
CITY OF BURBANK INTERSECTIONS - PEAK HOUR LEVELS OF SERVICE

No.		Intersection	Peak Hour	V/C or Delay	LOS
155.	[a]	Buena Vista Street & Verdugo Avenue	A.M. P.M.	0.601 0.731	B C
156.	[a]	Buena Vista Street & Magnolia Boulevard	A.M. P.M.	0.576 0.846	A D
163.	[b]	Bob Hope Drive & SR 134 EB Off-Ramp	A.M. P.M.	0.573 0.620	A B
164.	[c]	SR 134 WB On-Ramp & Alameda Avenue	A.M. P.M.	0.421 0.615	A B
165.	[a]	Hollywood Way & Thornton Avenue	A.M. P.M.	0.825 0.877	D D
166.	[a]	Hollywood Way & Empire Avenue	A.M. P.M.	0.802 0.781	D C
167.	[a]	Hollywood Way & Burbank Boulevard	A.M. P.M.	0.863 0.922	D E
168.	[a]	Buena Vista Street & Empire Avenue	A.M. P.M.	0.627 0.752	B C
169.	[a]	Buena Vista Street & Victory Boulevard	A.M. P.M.	0.696 0.776	B C
170.	[a]	Buena Vista Street & Burbank Boulevard	A.M. P.M.	0.632 0.640	B B
171.	[a]	Victory Boulevard & Olive Avenue	A.M. P.M.	0.699 0.847	B D
172.	[a]	Victory Boulevard & Alameda Avenue	A.M. P.M.	0.603 0.735	B C

Notes:

[a] Intersection is connected to the City of Burbank's Traffic Signal Interconnect & Signal Timing System. A credit of 0.02 in V/C ratio was included in the analysis.

[b] Intersection is uncontrolled. Analysis was done using 2000 Highway Capacity Manual Two-Way Stop-Controlled methodology. For the purpose of evaluating the operating conditions of the intersection, level of service is based on average vehicular delay in seconds for the most constrained approach rather than V/C ratio.

[c] Intersection is controlled by stop signs on minor approach. Analysis was done using 2000 Highway Capacity Manual Two-Way Stop-Controlled methodology. For the purpose of evaluating the operating conditions of the intersection, level of service is based on average vehicular delay in seconds for the most constrained approach rather than V/C ratio.

** Indicates oversaturated conditions, i.e. long waits at the approaches controlled by stop signs. Delay cannot be calculated.

TABLE F-1 (continued)
EXISTING CONDITIONS
CITY OF BURBANK INTERSECTIONS - PEAK HOUR LEVELS OF SERVICE SUMMARY

Level of Service	Intersections	
	A.M. Peak Hour	P.M. Peak Hour
A	15	12
B	12	5
C	4	12
D	5	6
E	0	1
F	0	0
Total	**36**	**36**

TABLE F-2
FUTURE WITHOUT PROJECT WITHOUT BURBANK LONG-TERM IMPROVEMENTS CONDITIONS (YEAR 2030)
CITY OF BURBANK INTERSECTIONS - PEAK HOUR LEVELS OF SERVICE

No.		Intersection	Peak Hour	V/C	LOS
74.		Pass Avenue & Magnolia Boulevard	A.M. P.M.	0.539 0.800	A C
75.		Pass Avenue & Verdugo Lane	A.M. P.M.	0.623 0.966	B E
76.		Pass Avenue & Oak Street	A.M. P.M.	0.503 0.729	A C
77.	[a]	Evergreen Street/Riverside Drive & Alameda Avenue	A.M. P.M.	1.021 0.935	F E
78.		Pass Avenue & SR 134 EB Off-Ramp	A.M. P.M.	0.569 0.627	A B
79.	[a]	Pass Avenue & Alameda Avenue	A.M. P.M.	0.832 0.965	D E
80.	[a]	Pass Avenue & Riverside Drive	A.M. P.M.	0.757 0.646	C B
81.	[a]	Olive Avenue & Pass Avenue	A.M. P.M.	0.861 1.056	D F
82.	[a]	Olive Avenue & Warner Brothers Studios Gate 2/Gate 3	A.M. P.M.	0.654 0.717	B C
83.	[a]	Olive Avenue & Warner Brothers Studios Gate 1/Lakeside Drive	A.M. P.M.	0.563 0.731	A C
84.	[a]	Hollywood Way & Alameda Avenue	A.M. P.M.	1.117 0.984	F E
85.	[a]	Cordova Street/SR 134 WB Off-Ramp & Alameda Avenue	A.M. P.M.	0.787 0.915	C E
86.	[a]	Hollywood Way & Olive Avenue	A.M. P.M.	0.794 1.110	C F
87.	[a]	Olive Avenue & Riverside Drive	A.M. P.M.	0.913 0.854	E D
88.	[a]	Lima Street & Olive Avenue	A.M. P.M.	0.482 0.505	A A
89.	[a]	Olive Avenue & Alameda Avenue	A.M. P.M.	0.793 1.078	C F
90.		California Street & Riverside Drive	A.M. P.M.	0.631 0.743	B C
91.	[a]	Bob Hope Drive & Alameda Avenue	A.M. P.M.	0.827 0.929	D E
92.	[a]	Buena Vista Street & Alameda Avenue	A.M. P.M.	0.818 0.883	D D
93.		Buena Vista Street/SR 134 EB On-Ramp & Riverside Drive/SR 134 WB Ramps	A.M. P.M.	0.982 0.990	E E
94.	[b]	SR 134 EB On-Ramp/Screenland Drive & Riverside Drive	A.M. P.M.	0.769 0.806	C D
95.	[a]	Buena Vista Street & Olive Avenue	A.M. P.M.	0.994 1.011	E F
153.	[a]	Hollywood Way & Verdugo Avenue	A.M. P.M.	1.092 1.122	F F
154.	[a]	Hollywood Way & Magnolia Boulevard	A.M. P.M.	1.154 1.173	F F

Notes:

[a] Intersection is connected to the City of Burbank's Traffic Signal Interconnect & Signal Timing System. A credit of 0.02 in V/C ratio was included in the analysis.

[b] Intersection is uncontrolled. Analysis was done using 2000 Highway Capacity Manual Two-Way Stop-Controlled methodology. For the purpose of evaluating the operating conditions of the intersection, level of service is based on average vehicular delay in seconds for the most constrained approach rather than V/C ratio.

TABLE F-2 (continued)
FUTURE WITHOUT PROJECT WITHOUT BURBANK LONG-TERM IMPROVEMENTS CONDITIONS (YEAR 2030)
CITY OF BURBANK INTERSECTIONS - PEAK HOUR LEVELS OF SERVICE

No.		Intersection	Peak Hour	V/C or Delay	LOS
155.	[a]	Buena Vista Street & Verdugo Avenue	A.M. P.M.	0.842 1.007	D F
156.	[a]	Buena Vista Street & Magnolia Boulevard	A.M. P.M.	0.914 1.107	E F
163.	[b]	Bob Hope Drive & SR 134 EB Off-Ramp	A.M. P.M.	0.739 0.787	C C
164.	[c]	SR 134 WB On-Ramp & Alameda Avenue	A.M. P.M.	0.418 0.483	A A
165.	[a]	Hollywood Way & Thornton Avenue	A.M. P.M.	1.257 1.156	F F
166.	[a]	Hollywood Way & Empire Avenue	A.M. P.M.	1.085 1.144	F F
167.	[a]	Hollywood Way & Burbank Boulevard	A.M. P.M.	1.159 1.322	F F
168.	[a]	Buena Vista Street & Empire Avenue	A.M. P.M.	1.147 1.312	F F
169.	[a]	Buena Vista Street & Victory Boulevard	A.M. P.M.	0.957 1.036	E F
170.	[a]	Buena Vista Street & Burbank Boulevard	A.M. P.M.	0.917 0.962	E E
171.	[a]	Victory Boulevard & Olive Avenue	A.M. P.M.	0.977 1.269	E F
172.	[a]	Victory Boulevard & Alameda Avenue	A.M. P.M.	0.767 1.026	C F

Notes:

[a] Intersection is connected to the City of Burbank's Traffic Signal Interconnect & Signal Timing System. A credit of 0.02 in V/C ratio was included in the analysis.

[b] Intersection is uncontrolled. Analysis was done using 2000 Highway Capacity Manual Two-Way Stop-Controlled methodology. For the purpose of evaluating the operating conditions of the intersection, level of service is based on average vehicular delay in seconds for the most constrained approach rather than V/C ratio.

[c] Intersection is controlled by stop signs on minor approach. Analysis was done using 2000 Highway Capacity Manual Two-Way Stop-Controlled methodology. For the purpose of evaluating the operating conditions of the intersection, level of service is based on average vehicular delay in seconds for the most constrained approach rather than V/C ratio.

** Indicates oversaturated conditions, i.e. long waits at the approaches controlled by stop signs. Delay cannot be calculated.

TABLE F-2 (continued)
FUTURE WITHOUT PROJECT WITHOUT BURBANK LONG-TERM IMPROVEMENTS CONDITIONS (YEAR 2030)
CITY OF BURBANK INTERSECTIONS - PEAK HOUR LEVELS OF SERVICE
SUMMARY

Level of Service	Intersections	
	A.M. Peak Hour	P.M. Peak Hour
A	6	2
B	3	2
C	7	6
D	5	3
E	7	8
F	8	15
Total	**36**	**36**

TABLE F-3
FUTURE WITH PROJECT WITHOUT BURBANK LONG-TERM IMPROVEMENTS CONDITIONS (YEAR 2030)
BEFORE TDM TRIP REDUCTION AND MITIGATIONS
CITY OF BURBANK INTERSECTIONS - PEAK HOUR LEVELS OF SERVICE

No.		Intersection	Peak Hour	Future without Project		Future with Project, Before TDM Trip Reduction and Mitigations			
				V/C	LOS	V/C	LOS	Change in V/C	Significant Impact?
74.		Pass Avenue & Magnolia Boulevard	A.M. P.M.	0.539 0.800	A C	0.542 0.812	A D	0.003 0.012	NO NO
75.		Pass Avenue & Verdugo Lane	A.M. P.M.	0.623 0.966	B E	0.626 0.984	B E	0.003 0.018	NO YES
76.		Pass Avenue & Oak Street	A.M. P.M.	0.503 0.729	A C	0.513 0.746	A C	0.010 0.017	NO NO
77.	[a]	Evergreen Street/Riverside Drive & Alameda Avenue	A.M. P.M.	1.021 0.935	F E	1.070 0.987	F E	0.049 0.052	YES YES
78.		Pass Avenue & SR 134 EB Off-Ramp	A.M. P.M.	0.569 0.627	A B	0.582 0.664	A B	0.013 0.037	NO NO
79.	[a]	Pass Avenue & Alameda Avenue	A.M. P.M.	0.832 0.965	D E	0.851 0.989	D E	0.019 0.024	NO YES
80.	[a]	Pass Avenue & Riverside Drive	A.M. P.M.	0.757 0.646	C B	0.795 0.732	C C	0.038 0.086	NO NO
81.	[a]	Olive Avenue & Pass Avenue	A.M. P.M.	0.861 1.056	D F	0.951 1.200	E F	0.090 0.144	YES YES
82.	[a]	Olive Avenue & Warner Brothers Studios Gate 2/Gate 3	A.M. P.M.	0.654 0.717	B C	0.718 0.789	C C	0.064 0.072	NO NO
83.	[a]	Olive Avenue & Warner Brothers Studios Gate 1/Lakeside Drive	A.M. P.M.	0.563 0.731	A C	0.602 0.829	B D	0.039 0.098	NO NO
84.	[a]	Hollywood Way & Alameda Avenue	A.M. P.M.	1.117 0.984	F E	1.127 0.994	F E	0.010 0.010	YES YES
85.	[a]	Cordova Street/SR 134 WB Off-Ramp & Alameda Avenue	A.M. P.M.	0.787 0.915	C E	0.795 0.922	C E	0.008 0.007	NO NO
86.	[a]	Hollywood Way & Olive Avenue	A.M. P.M.	0.794 1.110	C F	0.826 1.154	D F	0.032 0.044	NO YES
87.	[a]	Olive Avenue & Riverside Drive	A.M. P.M.	0.913 0.854	E D	0.938 0.873	E D	0.025 0.019	YES NO
88.	[a]	Lima Street & Olive Avenue	A.M. P.M.	0.482 0.505	A A	0.486 0.522	A A	0.004 0.017	NO NO
89.	[a]	Olive Avenue & Alameda Avenue	A.M. P.M.	0.793 1.078	C F	0.800 1.092	C F	0.007 0.014	NO YES
90.		California Street & Riverside Drive	A.M. P.M.	0.631 0.743	B C	0.639 0.755	B C	0.008 0.012	NO NO
91.	[a]	Bob Hope Drive & Alameda Avenue	A.M. P.M.	0.827 0.929	D E	0.837 0.940	D E	0.010 0.011	NO YES
92.	[a]	Buena Vista Street & Alameda Avenue	A.M. P.M.	0.818 0.883	D D	0.821 0.888	D D	0.003 0.005	NO NO
93.		Buena Vista Street/SR 134 EB On-Ramp & Riverside Drive/SR 134 WB Ramps	A.M. P.M.	0.982 0.990	E E	0.987 0.992	E E	0.005 0.002	NO NO

Notes:
[a] Intersection is connected to the City of Burbank's Traffic Signal Interconnect & Signal Timing System. A credit of 0.02 in V/C ratio was included in the analysis.

TABLE F-3 (continued)
FUTURE WITH PROJECT WITHOUT BURBANK LONG-TERM IMPROVEMENTS CONDITIONS (YEAR 2030)
BEFORE TDM TRIP REDUCTION AND MITIGATIONS
CITY OF BURBANK INTERSECTIONS - PEAK HOUR LEVELS OF SERVICE

No.		Intersection	Peak Hour	Future without Project		Future with Project, Before TDM Trip Reduction and Mitigations			
				V/C	LOS	V/C	LOS	Change in V/C	Significant Impact?
94.	[b]	SR 134 EB On-Ramp/Screenland Drive & Riverside Drive	A.M. P.M.	0.769 0.806	C D	0.770 0.810	C D	0.001 0.004	NO NO
95.	[a]	Buena Vista Street & Olive Avenue	A.M. P.M.	0.994 1.011	E F	1.001 1.017	F F	0.007 0.006	NO NO
153.	[a]	Hollywood Way & Verdugo Avenue	A.M. P.M.	1.092 1.122	F F	1.098 1.131	F F	0.006 0.009	NO NO
154.	[a]	Hollywood Way & Magnolia Boulevard	A.M. P.M.	1.154 1.173	F F	1.161 1.186	F F	0.007 0.013	NO YES
155.	[a]	Buena Vista Street & Verdugo Avenue	A.M. P.M.	0.842 1.007	D F	0.843 1.009	D F	0.001 0.002	NO NO
156.	[a]	Buena Vista Street & Magnolia Boulevard	A.M. P.M.	0.914 1.107	E F	0.915 1.109	E F	0.001 0.002	NO NO
163.	[b]	Bob Hope Drive & SR 134 EB Off-Ramp	A.M. P.M.	0.739 0.787	C C	0.744 0.792	C C	0.005 0.005	NO NO
164.	[c]	SR 134 WB On-Ramp & Alameda Avenue	A.M. P.M.	0.418 0.483	A A	0.424 0.491	A A	0.006 0.008	NO NO
165.	[a]	Hollywood Way & Thornton Avenue	A.M. P.M.	1.257 1.156	F F	1.263 1.164	F F	0.006 0.008	NO NO
166.	[a]	Hollywood Way & Empire Avenue	A.M. P.M.	1.085 1.144	F F	1.094 1.144	F F	0.009 0.000	NO NO
167.	[a]	Hollywood Way & Burbank Boulevard	A.M. P.M.	1.159 1.322	F F	1.168 1.336	F F	0.009 0.014	NO YES
168.	[a]	Buena Vista Street & Empire Avenue	A.M. P.M.	1.147 1.312	F F	1.149 1.313	F F	0.002 0.001	NO NO
169.	[a]	Buena Vista Street & Victory Boulevard	A.M. P.M.	0.957 1.036	E F	0.959 1.038	E F	0.002 0.002	NO NO
170.	[a]	Buena Vista Street & Burbank Boulevard	A.M. P.M.	0.917 0.962	E E	0.922 0.967	E E	0.005 0.005	NO NO
171.	[a]	Victory Boulevard & Olive Avenue	A.M. P.M.	0.977 1.269	E F	0.984 1.275	E F	0.007 0.006	NO NO
172.	[a]	Victory Boulevard & Alameda Avenue	A.M. P.M.	0.767 1.026	C F	0.769 1.028	C F	0.002 0.002	NO NO

Notes:
[a] Intersection is connected to the City of Burbank's Traffic Signal Interconnect & Signal Timing System. A credit of 0.02 in V/C ratio was included in the analysis.
[b] Intersection is controlled by stop signs on minor street approaches.
[c] Intersection is uncontrolled.

TABLE F-3 (continued)
FUTURE WITH PROJECT WITHOUT BURBANK LONG-TERM IMPROVEMENTS CONDITIONS (YEAR 2030)
BEFORE TDM TRIP REDUCTION AND MITIGATIONS
INTERSECTION IMPACT SUMMARY

Level of Service	A.M. Peak Hour	P.M. Peak Hour
E	2	5
F	2	5
Total Peak Hour Impacts	**4**	**10**
Total Individual Intersections Impacted	**11**	

TABLE F-4
FUTURE WITH PROJECT WITH TDM WITHOUT BURBANK LONG-TERM IMPROVEMENTS CONDITIONS (YEAR 2030)
BEFORE MITIGATIONS
CITY OF BURBANK INTERSECTIONS - PEAK HOUR LEVELS OF SERVICE

No.	Intersection	Peak Hour	Future without Project		Future with Project, Before TDM Trip Reduction and Mitigations				Future with Project with TDM, Before Mitigations			
			V/C	LOS	V/C	LOS	Change in V/C	Significant Impact?	V/C	LOS	Change in V/C	Significant Impact?
74.	Pass Avenue &	A.M.	0.539	A	0.542	A	0.003	NO	0.541	A	0.002	NO
	Magnolia Boulevard	P.M.	0.800	C	0.812	D	0.012	NO	0.809	D	0.009	NO
75.	Pass Avenue &	A.M.	0.623	B	0.626	B	0.003	NO	0.625	B	0.002	NO
	Verdugo Lane	P.M.	0.966	E	0.984	E	0.018	YES	0.979	E	0.013	YES
76.	Pass Avenue &	A.M.	0.503	A	0.513	A	0.010	NO	0.512	A	0.009	NO
	Oak Street	P.M.	0.729	C	0.746	C	0.017	NO	0.742	C	0.013	NO
77. [a]	Evergreen Street/Riverside Drive &	A.M.	1.021	F	1.070	F	0.049	YES	1.058	F	0.037	YES
	Alameda Avenue	P.M.	0.935	E	0.987	E	0.052	YES	0.976	E	0.041	YES
78.	Pass Avenue &	A.M.	0.569	A	0.582	A	0.013	NO	0.579	A	0.010	NO
	SR 134 EB Off-Ramp	P.M.	0.627	B	0.664	B	0.037	NO	0.657	B	0.030	NO
79. [a]	Pass Avenue &	A.M.	0.832	D	0.851	D	0.019	NO	0.845	D	0.013	NO
	Alameda Avenue	P.M.	0.965	E	0.989	E	0.024	YES	0.985	E	0.020	YES
80. [a]	Pass Avenue &	A.M.	0.757	C	0.795	C	0.038	NO	0.787	C	0.030	NO
	Riverside Drive	P.M.	0.646	B	0.732	C	0.086	NO	0.713	C	0.067	NO
81. [a]	Olive Avenue &	A.M.	0.861	D	0.951	E	0.090	YES	0.929	E	0.068	YES
	Pass Avenue	P.M.	1.056	F	1.200	F	0.144	YES	1.169	F	0.113	YES
82. [a]	Olive Avenue &	A.M.	0.654	B	0.718	C	0.064	NO	0.706	C	0.052	NO
	Warner Brothers Studios Gate 2/Gate 3	P.M.	0.717	C	0.789	C	0.072	NO	0.770	C	0.053	NO
83. [a]	Olive Avenue &	A.M.	0.563	A	0.602	B	0.039	NO	0.593	A	0.030	NO
	Warner Brothers Studios Gate 1/Lakeside Drive	P.M.	0.731	C	0.829	D	0.098	NO	0.809	D	0.078	NO
84. [a]	Hollywood Way &	A.M.	1.117	F	1.127	F	0.010	YES	1.125	F	0.008	NO
	Alameda Avenue	P.M.	0.984	E	0.994	E	0.010	YES	0.991	E	0.007	NO
85. [a]	Cordova Street/SR 134 WB Off-Ramp &	A.M.	0.787	C	0.795	C	0.008	NO	0.792	C	0.005	NO
	Alameda Avenue	P.M.	0.915	E	0.922	E	0.007	NO	0.922	E	0.007	NO
86. [a]	Hollywood Way &	A.M.	0.794	C	0.826	D	0.032	NO	0.820	D	0.026	NO
	Olive Avenue	P.M.	1.110	F	1.154	F	0.044	YES	1.145	F	0.035	YES
87. [a]	Olive Avenue &	A.M.	0.913	E	0.938	E	0.025	YES	0.933	E	0.020	YES
	Riverside Drive	P.M.	0.854	D	0.873	D	0.019	NO	0.869	D	0.015	NO
88. [a]	Lima Street &	A.M.	0.482	A	0.486	A	0.004	NO	0.485	A	0.003	NO
	Olive Avenue	P.M.	0.505	A	0.522	A	0.017	NO	0.518	A	0.013	NO
89. [a]	Olive Avenue &	A.M.	0.793	C	0.800	C	0.007	NO	0.798	C	0.005	NO
	Alameda Avenue	P.M.	1.078	F	1.092	F	0.014	YES	1.087	F	0.009	NO
90.	California Street &	A.M.	0.631	B	0.639	B	0.008	NO	0.637	B	0.006	NO
	Riverside Drive	P.M.	0.743	C	0.755	C	0.012	NO	0.752	C	0.009	NO
91. [a]	Bob Hope Drive &	A.M.	0.827	D	0.837	D	0.010	NO	0.835	D	0.008	NO
	Alameda Avenue	P.M.	0.929	E	0.940	E	0.011	YES	0.936	E	0.007	NO
92. [a]	Buena Vista Street &	A.M.	0.818	D	0.821	D	0.003	NO	0.820	D	0.002	NO
	Alameda Avenue	P.M.	0.883	D	0.888	D	0.005	NO	0.886	D	0.003	NO
93.	Buena Vista Street/SR 134 EB On-Ramp &	A.M.	0.982	E	0.987	E	0.005	NO	0.986	E	0.004	NO
	Riverside Drive/SR 134 WB Ramps	P.M.	0.990	E	0.992	E	0.002	NO	0.992	E	0.002	NO
94. [b]	SR 134 EB On-Ramp/Screenland Drive &	A.M.	0.769	C	0.770	C	0.001	NO	0.770	C	0.001	NO
	Riverside Drive	P.M.	0.806	D	0.810	D	0.004	NO	0.810	D	0.004	NO

Notes:
[a] Intersection is operating under the LADOT Adaptive Traffic Control System (ATCS). A credit of 0.10 in V/C ratio was included in the analysis.
[b] Intersection is controlled by stop signs on minor street approaches.

TABLE F-4 (continued)
FUTURE WITH PROJECT WITH TDM WITHOUT BURBANK LONG-TERM IMPROVEMENTS CONDITIONS (YEAR 2030)
BEFORE MITIGATIONS
CITY OF BURBANK INTERSECTIONS - PEAK HOUR LEVELS OF SERVICE

No.		Intersection	Peak Hour	Future without Project		Future with Project, Before TDM Trip Reduction and Mitigations				Future with Project with TDM, Before Mitigations			
				V/C	LOS	V/C	LOS	Change in V/C	Significant Impact?	V/C	LOS	Change in V/C	Significant Impact?
95.	[a]	Buena Vista Street & Olive Avenue	A.M. P.M.	0.994 1.011	E F	1.001 1.017	F F	0.007 0.006	NO NO	1.000 1.016	E F	0.006 0.005	NO NO
153.	[a]	Hollywood Way & Verdugo Avenue	A.M. P.M.	1.092 1.122	F F	1.098 1.131	F F	0.006 0.009	NO NO	1.096 1.128	F F	0.004 0.006	NO NO
154.	[a]	Hollywood Way & Magnolia Boulevard	A.M. P.M.	1.154 1.173	F F	1.161 1.186	F F	0.007 0.013	NO YES	1.159 1.182	F F	0.005 0.009	NO NO
155.	[a]	Buena Vista Street & Verdugo Avenue	A.M. P.M.	0.842 1.007	D F	0.843 1.009	D F	0.001 0.002	NO NO	0.843 1.008	D F	0.001 0.001	NO NO
156.	[a]	Buena Vista Street & Magnolia Boulevard	A.M. P.M.	0.914 1.107	E F	0.915 1.109	E F	0.001 0.002	NO NO	0.915 1.109	E F	0.001 0.002	NO NO
163.	[b]	Bob Hope Drive & SR 134 EB Off-Ramp	A.M. P.M.	0.739 0.787	C C	0.744 0.792	C C	0.005 0.005	NO NO	0.743 0.791	C C	0.004 0.004	NO NO
164.	[c]	SR 134 WB On-Ramp & Alameda Avenue	A.M. P.M.	0.418 0.483	A A	0.424 0.491	A A	0.006 0.008	NO NO	0.423 0.488	A A	0.005 0.005	NO NO
165.	[a]	Hollywood Way & Thornton Avenue	A.M. P.M.	1.257 1.156	F F	1.263 1.164	F F	0.006 0.008	NO NO	1.261 1.162	F F	0.004 0.006	NO NO
166.	[a]	Hollywood Way & Empire Avenue	A.M. P.M.	1.085 1.144	F F	1.094 1.144	F F	0.009 0.000	NO NO	1.091 1.151	F F	0.006 0.007	NO NO
167.	[a]	Hollywood Way & Burbank Boulevard	A.M. P.M.	1.159 1.322	F F	1.168 1.336	F F	0.009 0.014	NO YES	1.165 1.331	F F	0.006 0.009	NO NO
168.	[a]	Buena Vista Street & Empire Avenue	A.M. P.M.	1.147 1.312	F F	1.149 1.313	F F	0.002 0.001	NO NO	1.149 1.313	F F	0.002 0.001	NO NO
169.	[a]	Buena Vista Street & Victory Boulevard	A.M. P.M.	0.957 1.036	E F	0.959 1.038	E F	0.002 0.002	NO NO	0.958 1.038	E F	0.001 0.002	NO NO
170.	[a]	Buena Vista Street & Burbank Boulevard	A.M. P.M.	0.917 0.962	E E	0.922 0.967	E E	0.005 0.005	NO NO	0.920 0.965	E E	0.003 0.003	NO NO
171.	[a]	Victory Boulevard & Olive Avenue	A.M. P.M.	0.977 1.269	E F	0.984 1.275	E F	0.007 0.006	NO NO	0.983 1.273	E F	0.006 0.004	NO NO
172.	[a]	Victory Boulevard & Alameda Avenue	A.M. P.M.	0.767 1.026	C F	0.769 1.028	C F	0.002 0.002	NO NO	0.768 1.027	C F	0.001 0.001	NO NO

Notes:
[a] Intersection is connected to the City of Burbank's Traffic Signal Interconnect & Signal Timing System. A credit of 0.02 in V/C ratio was included in the analysis.
[b] Intersection is controlled by stop signs on minor street approaches.
[c] Intersection is uncontrolled.

TABLE F-4 (continued)
FUTURE WITH PROJECT WITH TDM WITHOUT BURBANK LONG-TERM IMPROVEMENTS CONDITIONS (YEAR 2030)
INTERSECTION IMPACT SUMMARY

Level of Service	Number of Impacted Intersections before TDM and Mitigations		Number of Impacted Intersections with TDM, before Mitigations	
	A.M. Peak Hour	P.M. Peak Hour	A.M. Peak Hour	P.M. Peak Hour
E	2	5	2	3
F	2	5	1	2
Total Peak Hour Impacts	**4**	**10**	**3**	**5**
Total Individual Intersections Impacted	**11**		**6**	

TABLE F-5
FUTURE WITH PROJECT WITH FUNDED IMPROVEMENTS WITHOUT BURBANK LONG-TERM IMPROVEMENTS CONDITIONS (YEAR 2030)
CITY OF BURBANK INTERSECTIONS - PEAK HOUR LEVELS OF SERVICE

No.		Intersection	Peak Hour	Future without Project		Future with Project with TDM, Before Mitigations				Future with Project with Funded Improvements			
				V/C	LOS	V/C	LOS	Change in V/C	Significant Impact?	V/C	LOS	Change in V/C	Significant Impact?
74.		Pass Avenue & Magnolia Boulevard	A.M. P.M.	0.539 0.800	A C	0.541 0.809	A D	0.002 0.009	NO NO	0.558 0.804	A D	0.019 0.004	NO NO
75.		Pass Avenue & Verdugo Lane	A.M. P.M.	0.623 0.966	B E	0.625 0.979	B E	0.002 0.013	NO YES	0.599 0.909	A E	-0.024 -0.057	NO NO
76.		Pass Avenue & Oak Street	A.M. P.M.	0.503 0.729	A C	0.512 0.742	A C	0.009 0.013	NO NO	0.512 0.742	A C	0.009 0.013	NO NO
77.	[a]	Evergreen Street/Riverside Drive & Alameda Avenue	A.M. P.M.	1.021 0.935	F E	1.058 0.976	F E	0.037 0.041	YES YES	0.622 0.937	B E	-0.399 0.002	NO NO
78.		Pass Avenue & SR 134 EB Off-Ramp	A.M. P.M.	0.569 0.627	A B	0.579 0.657	A B	0.010 0.030	NO NO	0.592 0.657	A B	0.023 0.030	NO NO
79.	[a]	Pass Avenue & Alameda Avenue	A.M. P.M.	0.832 0.965	D E	0.845 0.985	D E	0.013 0.020	NO YES	0.800 0.919	C E	-0.032 -0.046	NO NO
80.	[a]	Pass Avenue & Riverside Drive	A.M. P.M.	0.757 0.646	C B	0.787 0.713	C C	0.030 0.067	NO NO	0.616 0.619	B B	-0.141 -0.027	NO NO
81.	[a]	Olive Avenue & Pass Avenue	A.M. P.M.	0.861 1.056	D F	0.929 1.169	E F	0.068 0.113	YES YES	0.751 0.878	C D	-0.110 -0.178	NO NO
82.	[a]	Olive Avenue & Warner Brothers Studios Gate 2/Gate 3	A.M. P.M.	0.654 0.717	B C	0.706 0.770	C C	0.052 0.053	NO NO	0.645 0.750	B C	-0.009 0.033	NO NO
83.	[a]	Olive Avenue & Warner Brothers Studios Gate 1/Lakeside Drive	A.M. P.M.	0.563 0.731	A C	0.593 0.809	A D	0.030 0.078	NO NO	0.525 0.725	A C	-0.038 -0.006	NO NO
84.	[a]	Hollywood Way & Alameda Avenue	A.M. P.M.	1.117 0.984	F E	1.125 0.991	F E	0.008 0.007	NO NO	1.098 0.961	F E	-0.019 -0.023	NO NO
85.	[a]	Cordova Street/SR 134 WB Off-Ramp & Alameda Avenue	A.M. P.M.	0.787 0.915	C E	0.792 0.922	C E	0.005 0.007	NO NO	0.792 0.922	C E	0.005 0.007	NO NO
86.	[a]	Hollywood Way & Olive Avenue	A.M. P.M.	0.794 1.110	C F	0.820 1.145	D F	0.026 0.035	NO YES	0.763 1.096	C F	-0.031 -0.014	NO NO
87.	[a]	Olive Avenue & Riverside Drive	A.M. P.M.	0.913 0.854	E D	0.933 0.869	E D	0.020 0.015	YES NO	0.857 0.801	D D	-0.056 -0.053	NO NO
88.	[a]	Lima Street & Olive Avenue	A.M. P.M.	0.482 0.505	A A	0.485 0.518	A A	0.003 0.013	NO NO	0.459 0.489	A A	-0.023 -0.016	NO NO
89.	[a]	Olive Avenue & Alameda Avenue	A.M. P.M.	0.793 1.078	C F	0.798 1.087	C F	0.005 0.009	NO NO	0.757 0.995	C E	-0.036 -0.083	NO NO
90.		California Street & Riverside Drive	A.M. P.M.	0.631 0.743	B C	0.637 0.752	B C	0.006 0.009	NO NO	0.637 0.749	B C	0.006 0.006	NO NO
91.	[a]	Bob Hope Drive & Alameda Avenue	A.M. P.M.	0.827 0.929	D E	0.835 0.936	D E	0.008 0.007	NO NO	0.835 0.936	D E	0.008 0.007	NO NO
92.	[a]	Buena Vista Street & Alameda Avenue	A.M. P.M.	0.818 0.883	D D	0.820 0.886	D D	0.002 0.003	NO NO	0.819 0.886	D D	0.001 0.003	NO NO
93.		Buena Vista Street/SR 134 EB On-Ramp & Riverside Drive/SR 134 WB Ramps	A.M. P.M.	0.982 0.990	E E	0.986 0.992	E E	0.004 0.002	NO NO	0.983 0.988	E E	0.001 -0.002	NO NO
94.	[b]	SR 134 EB On-Ramp/Screenland Drive & Riverside Drive	A.M. P.M.	0.769 0.806	C D	0.770 0.810	C D	0.001 0.004	NO NO	0.770 0.810	C D	0.001 0.004	NO NO

Notes:
[a] Intersection is operating under the LADOT Adaptive Traffic Control System (ATCS). A credit of 0.10 in V/C ratio was included in the analysis.
[b] Intersection is controlled by stop signs on minor street approaches.

TABLE F-5 (continued)
FUTURE WITH PROJECT WITH FUNDED IMPROVEMENTS WITHOUT BURBANK LONG-TERM IMPROVEMENTS CONDITIONS (YEAR 2030)
CITY OF BURBANK INTERSECTIONS - PEAK HOUR LEVELS OF SERVICE

No.		Intersection	Peak Hour	Future without Project		Future with Project with TDM, Before Mitigations				Future with Project with Funded Improvements			
				V/C	LOS	V/C	LOS	Change in V/C	Significant Impact?	V/C	LOS	Change in V/C	Significant Impact?
95.	[a]	Buena Vista Street &	A.M.	0.994	E	1.000	E	0.006	NO	0.953	E	-0.041	NO
		Olive Avenue	P.M.	1.011	F	1.016	F	0.005	NO	0.968	E	-0.043	NO
153.	[a]	Hollywood Way &	A.M.	1.092	F	1.096	F	0.004	NO	1.100	F	0.008	NO
		Verdugo Avenue	P.M.	1.122	F	1.128	F	0.006	NO	1.125	F	0.003	NO
154.	[a]	Hollywood Way &	A.M.	1.154	F	1.159	F	0.005	NO	1.163	F	0.009	NO
		Magnolia Boulevard	P.M.	1.173	F	1.182	F	0.009	NO	1.182	F	0.009	NO
155.	[a]	Buena Vista Street &	A.M.	0.842	D	0.843	D	0.001	NO	0.845	D	0.003	NO
		Verdugo Avenue	P.M.	1.007	F	1.008	F	0.001	NO	1.005	F	-0.002	NO
156.	[a]	Buena Vista Street &	A.M.	0.914	E	0.915	E	0.001	NO	0.917	E	0.003	NO
		Magnolia Boulevard	P.M.	1.107	F	1.109	F	0.002	NO	1.111	F	0.004	NO
163.	[b]	Bob Hope Drive &	A.M.	0.739	C	0.743	C	0.004	NO	0.743	C	0.004	NO
		SR 134 EB Off-Ramp	P.M.	0.787	C	0.791	C	0.004	NO	0.791	C	0.004	NO
164.	[c]	SR 134 WB On-Ramp &	A.M.	0.418	A	0.423	A	0.005	NO	0.423	A	0.005	NO
		Alameda Avenue	P.M.	0.483	A	0.488	A	0.005	NO	0.488	A	0.005	NO
165.	[a]	Hollywood Way &	A.M.	1.257	F	1.261	F	0.004	NO	1.261	F	0.004	NO
		Thornton Avenue	P.M.	1.156	F	1.162	F	0.006	NO	1.162	F	0.006	NO
166.	[a]	Hollywood Way &	A.M.	1.085	F	1.091	F	0.006	NO	1.091	F	0.006	NO
		Empire Avenue	P.M.	1.144	F	1.151	F	0.007	NO	1.151	F	0.007	NO
167.	[a]	Hollywood Way &	A.M.	1.159	F	1.165	F	0.006	NO	1.165	F	0.006	NO
		Burbank Boulevard	P.M.	1.322	F	1.331	F	0.009	NO	1.328	F	0.006	NO
168.	[a]	Buena Vista Street &	A.M.	1.147	F	1.149	F	0.002	NO	1.149	F	0.002	NO
		Empire Avenue	P.M.	1.312	F	1.313	F	0.001	NO	1.313	F	0.001	NO
169.	[a]	Buena Vista Street &	A.M.	0.957	E	0.958	E	0.001	NO	0.958	E	0.001	NO
		Victory Boulevard	P.M.	1.036	F	1.038	F	0.002	NO	1.038	F	0.002	NO
170.	[a]	Buena Vista Street &	A.M.	0.917	E	0.920	E	0.003	NO	0.918	E	0.001	NO
		Burbank Boulevard	P.M.	0.962	E	0.965	E	0.003	NO	0.965	E	0.003	NO
171.	[a]	Victory Boulevard &	A.M.	0.977	E	0.983	E	0.006	NO	0.983	E	0.006	NO
		Olive Avenue	P.M.	1.269	F	1.273	F	0.004	NO	1.275	F	0.006	NO
172.	[a]	Victory Boulevard &	A.M.	0.767	C	0.768	C	0.001	NO	0.768	C	0.001	NO
		Alameda Avenue	P.M.	1.026	F	1.027	F	0.001	NO	1.027	F	0.001	NO

Notes:
[a] Intersection is connected to the City of Burbank's Traffic Signal Interconnect & Signal Timing System. A credit of 0.02 in V/C ratio was included in the analysis.
[b] Intersection is controlled by stop signs on minor street approaches.
[c] Intersection is uncontrolled.

TABLE F-5 (continued)
FUTURE WITH PROJECT WITH FUNDED IMPROVEMENTS WITHOUT BURBANK LONG-TERM IMPROVEMENTS CONDITIONS (YEAR 2030)
INTERSECTION IMPACT SUMMARY

Level of Service	Number of Impacted Intersections before TDM and Mitigations		Number of Impacted Intersections before TDM and Mitigations		Number of Intersections with Residual Impacts	
	A.M. Peak Hour	P.M. Peak Hour	A.M. Peak Hour	P.M. Peak Hour	A.M. Peak Hour	P.M. Peak Hour
E	2	5	2	3	0	0
F	2	5	1	2	0	0
Total Peak Hour Impacts	**4**	**10**	**3**	**5**	**0**	**0**
Total Individual Intersections Impacted	**11**		**6**		**0**	

TABLE F-6
FUTURE WITHOUT PROJECT WITH BURBANK LONG-TERM IMPROVEMENTS CONDITIONS (YEAR 2030)
CITY OF BURBANK INTERSECTIONS - PEAK HOUR LEVELS OF SERVICE

No.		Intersection	Peak Hour	V/C	LOS
74.		Pass Avenue & Magnolia Boulevard	A.M. P.M.	0.539 0.800	A C
75.		Pass Avenue & Verdugo Lane	A.M. P.M.	0.623 0.966	B E
76.		Pass Avenue & Oak Street	A.M. P.M.	0.503 0.729	A C
77.	[a]	Evergreen Street/Riverside Drive & Alameda Avenue	A.M. P.M.	1.021 0.935	F E
78.		Pass Avenue & SR 134 EB Off-Ramp	A.M. P.M.	0.569 0.627	A B
79.	[a]	Pass Avenue & Alameda Avenue	A.M. P.M.	0.832 0.965	D E
80.	[a]	Pass Avenue & Riverside Drive	A.M. P.M.	0.757 0.646	C B
81.	[a]	Olive Avenue & Pass Avenue	A.M. P.M.	0.598 0.805	A D
82.	[a]	Olive Avenue & Warner Brothers Studios Gate 2/Gate 3	A.M. P.M.	0.654 0.717	B C
83.	[a]	Olive Avenue & Warner Brothers Studios Gate 1/Lakeside Drive	A.M. P.M.	0.563 0.731	A C
84.	[a]	Hollywood Way & Alameda Avenue	A.M. P.M.	1.117 0.925	F E
85.	[a]	Cordova Street/SR 134 WB Off-Ramp & Alameda Avenue	A.M. P.M.	0.787 0.915	C E
86.	[a]	Hollywood Way & Olive Avenue	A.M. P.M.	0.699 0.814	B D
87.	[a]	Olive Avenue & Riverside Drive	A.M. P.M.	0.913 0.854	E D
88.	[a]	Lima Street & Olive Avenue	A.M. P.M.	0.482 0.505	A A
89.	[a]	Olive Avenue & Alameda Avenue	A.M. P.M.	0.793 1.078	C F
90.		California Street & Riverside Drive	A.M. P.M.	0.631 0.743	B C
91.	[a]	Bob Hope Drive & Alameda Avenue	A.M. P.M.	0.698 0.801	B D
92.	[a]	Buena Vista Street & Alameda Avenue	A.M. P.M.	0.725 0.817	C D
93.		Buena Vista Street/SR 134 EB On-Ramp & Riverside Drive/SR 134 WB Ramps	A.M. P.M.	0.889 0.841	D D
94.	[b]	SR 134 EB On-Ramp/Screenland Drive & Riverside Drive	A.M. P.M.	0.769 0.806	C D
95.	[a]	Buena Vista Street & Olive Avenue	A.M. P.M.	0.974 0.949	E E
153.	[a]	Hollywood Way & Verdugo Avenue	A.M. P.M.	1.049 1.010	F F
154.	[a]	Hollywood Way & Magnolia Boulevard	A.M. P.M.	1.078 1.034	F F

Notes:

[a] Intersection is connected to the City of Burbank's Traffic Signal Interconnect & Signal Timing System. A credit of 0.02 in V/C ratio was included in the analysis.

[b] Intersection is uncontrolled. Analysis was done using 2000 Highway Capacity Manual Two-Way Stop-Controlled methodology. For the purpose of evaluating the operating conditions of the intersection, level of service is based on average vehicular delay in seconds for the most constrained approach rather than V/C ratio.

TABLE F-6 (continued)
FUTURE WITHOUT PROJECT WITH BURBANK LONG-TERM IMPROVEMENTS CONDITIONS (YEAR 2030)
CITY OF BURBANK INTERSECTIONS - PEAK HOUR LEVELS OF SERVICE

No.		Intersection	Peak Hour	V/C or Delay	LOS
155.	[a]	Buena Vista Street & Verdugo Avenue	A.M. P.M.	0.842 1.007	D F
156.	[a]	Buena Vista Street & Magnolia Boulevard	A.M. P.M.	0.893 1.049	D F
163.	[b]	Bob Hope Drive & SR 134 EB Off-Ramp	A.M. P.M.	0.591 0.629	A B
164.	[c]	SR 134 WB On-Ramp & Alameda Avenue	A.M. P.M.	0.418 0.483	A A
165.	[a]	Hollywood Way & Thornton Avenue	A.M. P.M.	0.977 0.924	E E
166.	[a]	Hollywood Way & Empire Avenue	A.M. P.M.	1.035 1.029	F F
167.	[a]	Hollywood Way & Burbank Boulevard	A.M. P.M.	1.011 1.131	F F
168.	[a]	Buena Vista Street & Empire Avenue	A.M. P.M.	1.072 1.174	F F
169.	[a]	Buena Vista Street & Victory Boulevard	A.M. P.M.	0.909 0.969	E E
170.	[a]	Buena Vista Street & Burbank Boulevard	A.M. P.M.	0.917 0.962	E E
171.	[a]	Victory Boulevard & Olive Avenue	A.M. P.M.	0.928 1.072	E F
172.	[a]	Victory Boulevard & Alameda Avenue	A.M. P.M.	0.788 1.012	C F

Notes:

[a] Intersection is connected to the City of Burbank's Traffic Signal Interconnect & Signal Timing System. A credit of 0.02 in V/C ratio was included in the analysis.

[b] Intersection is uncontrolled. Analysis was done using 2000 Highway Capacity Manual Two-Way Stop-Controlled methodology. For the purpose of evaluating the operating conditions of the intersection, level of service is based on average vehicular delay in seconds for the most constrained approach rather than V/C ratio.

[c] Intersection is controlled by stop signs on minor approach. Analysis was done using 2000 Highway Capacity Manual Two-Way Stop-Controlled methodology. For the purpose of evaluating the operating conditions of the intersection, level of service is based on average vehicular delay in seconds for the most constrained approach rather than V/C ratio.

** Indicates oversaturated conditions, i.e. long waits at the approaches controlled by stop signs. Delay cannot be calculated.

TABLE F-6 (continued)
FUTURE WITHOUT PROJECT WITH BURBANK LONG-TERM IMPROVEMENTS CONDITIONS (YEAR 2030)
CITY OF BURBANK INTERSECTIONS - PEAK HOUR LEVELS OF SERVICE
SUMMARY

Level of Service	Intersections	
	A.M. Peak Hour	P.M. Peak Hour
A	8	2
B	5	3
C	6	5
D	4	7
E	6	9
F	7	10
Total	**36**	**36**

TABLE F-7
FUTURE WITH PROJECT WITH BURBANK LONG-TERM IMPROVEMENTS CONDITIONS (YEAR 2030)
BEFORE TDM TRIP REDUCTION AND MITIGATIONS
CITY OF BURBANK INTERSECTIONS - PEAK HOUR LEVELS OF SERVICE

No.		Intersection	Peak Hour	Future without Project		Future with Project, Before TDM Trip Reduction and Mitigations			
				V/C	LOS	V/C	LOS	Change in V/C	Significant Impact?
74.		Pass Avenue & Magnolia Boulevard	A.M. P.M.	0.539 0.800	A C	0.542 0.812	A D	0.003 0.012	NO NO
75.		Pass Avenue & Verdugo Lane	A.M. P.M.	0.623 0.966	B E	0.626 0.984	B E	0.003 0.018	NO YES
76.		Pass Avenue & Oak Street	A.M. P.M.	0.503 0.729	A C	0.513 0.746	A C	0.010 0.017	NO NO
77.	[a]	Evergreen Street/Riverside Drive & Alameda Avenue	A.M. P.M.	1.021 0.935	F E	1.070 0.987	F E	0.049 0.052	YES YES
78.		Pass Avenue & SR 134 EB Off-Ramp	A.M. P.M.	0.569 0.627	A B	0.582 0.664	A B	0.013 0.037	NO NO
79.	[a]	Pass Avenue & Alameda Avenue	A.M. P.M.	0.832 0.965	D E	0.851 0.989	D E	0.019 0.024	NO YES
80.	[a]	Pass Avenue & Riverside Drive	A.M. P.M.	0.757 0.646	C B	0.795 0.732	C C	0.038 0.086	NO NO
81.	[a]	Olive Avenue & Pass Avenue	A.M. P.M.	0.598 0.805	A D	0.635 0.900	B D	0.037 0.095	NO NO
82.	[a]	Olive Avenue & Warner Brothers Studios Gate 2/Gate 3	A.M. P.M.	0.654 0.717	B C	0.718 0.789	C C	0.064 0.072	NO NO
83.	[a]	Olive Avenue & Warner Brothers Studios Gate 1/Lakeside Drive	A.M. P.M.	0.563 0.731	A C	0.602 0.829	B D	0.039 0.098	NO NO
84.	[a]	Hollywood Way & Alameda Avenue	A.M. P.M.	1.117 0.925	F E	1.127 0.935	F E	0.010 0.010	YES YES
85.	[a]	Cordova Street/SR 134 WB Off-Ramp & Alameda Avenue	A.M. P.M.	0.787 0.915	C E	0.795 0.922	C E	0.008 0.007	NO NO
86.	[a]	Hollywood Way & Olive Avenue	A.M. P.M.	0.699 0.814	B D	0.727 0.849	C D	0.028 0.035	NO NO
87.	[a]	Olive Avenue & Riverside Drive	A.M. P.M.	0.913 0.854	E D	0.938 0.873	E D	0.025 0.019	YES NO
88.	[a]	Lima Street & Olive Avenue	A.M. P.M.	0.482 0.505	A A	0.486 0.522	A A	0.004 0.017	NO NO
89.	[a]	Olive Avenue & Alameda Avenue	A.M. P.M.	0.793 1.078	C F	0.800 1.092	C F	0.007 0.014	NO YES
90.		California Street & Riverside Drive	A.M. P.M.	0.631 0.743	B C	0.639 0.755	B C	0.008 0.012	NO NO
91.	[a]	Bob Hope Drive & Alameda Avenue	A.M. P.M.	0.698 0.801	B D	0.705 0.807	C D	0.007 0.006	NO NO
92.	[a]	Buena Vista Street & Alameda Avenue	A.M. P.M.	0.725 0.817	C D	0.728 0.823	C D	0.003 0.006	NO NO
93.		Buena Vista Street/SR 134 EB On-Ramp & Riverside Drive/SR 134 WB Ramps	A.M. P.M.	0.889 0.841	D D	0.893 0.844	D D	0.004 0.003	NO NO

Notes:
[a] Intersection is connected to the City of Burbank's Traffic Signal Interconnect & Signal Timing System. A credit of 0.02 in V/C ratio was included in the analysis.

TABLE F-7 (continued)
FUTURE WITH PROJECT WITH BURBANK LONG-TERM IMPROVEMENTS CONDITIONS (YEAR 2030)
BEFORE TDM TRIP REDUCTION AND MITIGATIONS
CITY OF BURBANK INTERSECTIONS - PEAK HOUR LEVELS OF SERVICE

No.		Intersection	Peak Hour	Future without Project		Future with Project, Before TDM Trip Reduction and Mitigations			
				V/C	LOS	V/C	LOS	Change in V/C	Significant Impact?
94.	[b]	SR 134 EB On-Ramp/Screenland Drive & Riverside Drive	A.M. P.M.	0.769 0.806	C D	0.770 0.810	C D	0.001 0.004	NO NO
95.	[a]	Buena Vista Street & Olive Avenue	A.M. P.M.	0.974 0.949	E E	0.980 0.955	E E	0.006 0.006	NO NO
153.	[a]	Hollywood Way & Verdugo Avenue	A.M. P.M.	1.049 1.010	F F	1.055 1.019	F F	0.006 0.009	NO NO
154.	[a]	Hollywood Way & Magnolia Boulevard	A.M. P.M.	1.078 1.034	F F	1.085 1.045	F F	0.007 0.011	NO YES
155.	[a]	Buena Vista Street & Verdugo Avenue	A.M. P.M.	0.842 1.007	D F	0.843 1.009	D F	0.001 0.002	NO NO
156.	[a]	Buena Vista Street & Magnolia Boulevard	A.M. P.M.	0.893 1.049	D F	0.895 1.053	D F	0.002 0.004	NO NO
163.	[b]	Bob Hope Drive & SR 134 EB Off-Ramp	A.M. P.M.	0.591 0.629	A B	0.595 0.633	A B	0.004 0.004	NO NO
164.	[c]	SR 134 WB On-Ramp & Alameda Avenue	A.M. P.M.	0.418 0.483	A A	0.424 0.491	A A	0.006 0.008	NO NO
165.	[a]	Hollywood Way & Thornton Avenue	A.M. P.M.	0.977 0.924	E E	0.981 0.929	E E	0.004 0.005	NO NO
166.	[a]	Hollywood Way & Empire Avenue	A.M. P.M.	1.035 1.029	F F	1.043 1.037	F F	0.008 0.008	NO NO
167.	[a]	Hollywood Way & Burbank Boulevard	A.M. P.M.	1.011 1.131	F F	1.016 1.143	F F	0.005 0.012	NO YES
168.	[a]	Buena Vista Street & Empire Avenue	A.M. P.M.	1.072 1.174	F F	1.075 1.176	F F	0.003 0.002	NO NO
169.	[a]	Buena Vista Street & Victory Boulevard	A.M. P.M.	0.909 0.969	E E	0.911 0.971	E E	0.002 0.002	NO NO
170.	[a]	Buena Vista Street & Burbank Boulevard	A.M. P.M.	0.917 0.962	E E	0.922 0.967	E E	0.005 0.005	NO NO
171.	[a]	Victory Boulevard & Olive Avenue	A.M. P.M.	0.928 1.072	E F	0.933 1.076	E F	0.005 0.004	NO NO
172.	[a]	Victory Boulevard & Alameda Avenue	A.M. P.M.	0.788 1.012	C F	0.791 1.014	C F	0.003 0.002	NO NO

Notes:
[a] Intersection is connected to the City of Burbank's Traffic Signal Interconnect & Signal Timing System. A credit of 0.02 in V/C ratio was included in the analysis.
[b] Intersection is controlled by stop signs on minor street approaches.
[d] Intersection is uncontrolled.

TABLE F-7 (continued)
FUTURE WITH PROJECT WITH BURBANK LONG-TERM IMPROVEMENTS CONDITIONS (YEAR 2030)
BEFORE TDM TRIP REDUCTION AND MITIGATIONS
INTERSECTION IMPACT SUMMARY

Level of Service	A.M. Peak Hour	P.M. Peak Hour
E	1	4
F	2	3
Total Peak Hour Impacts	**3**	**7**
Total Individual Intersections Impacted	**8**	

TABLE F-8
FUTURE WITH PROJECT WITH TDM WITH BURBANK LONG-TERM IMPROVEMENTS CONDITIONS (YEAR 2030)
BEFORE MITIGATIONS
CITY OF BURBANK INTERSECTIONS - PEAK HOUR LEVELS OF SERVICE

No.		Intersection	Peak Hour	Future without Project		Future with Project, Before TDM Trip Reduction and Mitigations				Future with Project with TDM, Before Mitigations			
				V/C	LOS	V/C	LOS	Change in V/C	Significant Impact?	V/C	LOS	Change in V/C	Significant Impact?
74.		Pass Avenue & Magnolia Boulevard	A.M. P.M.	0.539 0.800	A C	0.542 0.812	A D	0.003 0.012	NO NO	0.541 0.809	A D	0.002 0.009	NO NO
75.		Pass Avenue & Verdugo Lane	A.M. P.M.	0.623 0.966	B E	0.626 0.984	B E	0.003 0.018	NO YES	0.625 0.979	B E	0.002 0.013	NO YES
76.		Pass Avenue & Oak Street	A.M. P.M.	0.503 0.729	A C	0.513 0.746	A C	0.010 0.017	NO NO	0.512 0.742	A C	0.009 0.013	NO NO
77.	[a]	Evergreen Street/Riverside Drive & Alameda Avenue	A.M. P.M.	1.021 0.935	F E	1.070 0.987	F E	0.049 0.052	YES YES	1.058 0.976	F E	0.037 0.041	YES YES
78.		Pass Avenue & SR 134 EB Off-Ramp	A.M. P.M.	0.569 0.627	A B	0.582 0.664	A B	0.013 0.037	NO NO	0.579 0.657	A B	0.010 0.030	NO NO
79.	[a]	Pass Avenue & Alameda Avenue	A.M. P.M.	0.832 0.965	D E	0.851 0.989	D E	0.019 0.024	NO YES	0.845 0.985	D E	0.013 0.020	NO YES
80.	[a]	Pass Avenue & Riverside Drive	A.M. P.M.	0.757 0.646	C B	0.795 0.732	C C	0.038 0.086	NO NO	0.787 0.713	C C	0.030 0.067	NO NO
81.	[a]	Olive Avenue & Pass Avenue	A.M. P.M.	0.598 0.805	A D	0.635 0.900	B D	0.037 0.095	NO NO	0.626 0.879	B D	0.028 0.074	NO NO
82.	[a]	Olive Avenue & Warner Brothers Studios Gate 2/Gate 3	A.M. P.M.	0.654 0.717	B C	0.718 0.789	C C	0.064 0.072	NO NO	0.706 0.770	C C	0.052 0.053	NO NO
83.	[a]	Olive Avenue & Warner Brothers Studios Gate 1/Lakeside Drive	A.M. P.M.	0.563 0.731	A C	0.602 0.829	B D	0.039 0.098	NO NO	0.593 0.809	A D	0.030 0.078	NO NO
84.	[a]	Hollywood Way & Alameda Avenue	A.M. P.M.	1.117 0.925	F E	1.127 0.935	F E	0.010 0.010	YES YES	1.125 0.932	F E	0.008 0.007	NO NO
85.	[a]	Cordova Street/SR 134 WB Off-Ramp & Alameda Avenue	A.M. P.M.	0.787 0.915	C E	0.795 0.922	C E	0.008 0.007	NO NO	0.792 0.922	C E	0.005 0.007	NO NO
86.	[a]	Hollywood Way & Olive Avenue	A.M. P.M.	0.699 0.814	B D	0.727 0.849	C D	0.028 0.035	NO NO	0.722 0.842	C D	0.023 0.028	NO NO
87.	[a]	Olive Avenue & Riverside Drive	A.M. P.M.	0.913 0.854	E D	0.938 0.873	E D	0.025 0.019	YES NO	0.933 0.869	E D	0.020 0.015	YES NO
88.	[a]	Lima Street & Olive Avenue	A.M. P.M.	0.482 0.505	A A	0.486 0.522	A A	0.004 0.017	NO NO	0.485 0.518	A A	0.003 0.013	NO NO
89.	[a]	Olive Avenue & Alameda Avenue	A.M. P.M.	0.793 1.078	C F	0.800 1.092	C F	0.007 0.014	NO YES	0.798 1.087	C F	0.005 0.009	NO NO
90.		California Street & Riverside Drive	A.M. P.M.	0.631 0.743	B C	0.639 0.755	B C	0.008 0.012	NO NO	0.637 0.752	B C	0.006 0.009	NO NO
91.	[a]	Bob Hope Drive & Alameda Avenue	A.M. P.M.	0.698 0.801	B D	0.705 0.807	C D	0.007 0.006	NO NO	0.703 0.805	C D	0.005 0.004	NO NO
92.	[a]	Buena Vista Street & Alameda Avenue	A.M. P.M.	0.725 0.817	C D	0.728 0.823	C D	0.003 0.006	NO NO	0.727 0.821	C D	0.002 0.004	NO NO
93.		Buena Vista Street/SR 134 EB On-Ramp & Riverside Drive/SR 134 WB Ramps	A.M. P.M.	0.889 0.841	D D	0.893 0.844	D D	0.004 0.003	NO NO	0.892 0.844	D D	0.003 0.003	NO NO
94.	[b]	SR 134 EB On-Ramp/Screenland Drive & Riverside Drive	A.M. P.M.	0.769 0.806	C D	0.770 0.810	C D	0.001 0.004	NO NO	0.770 0.810	C D	0.001 0.004	NO NO

Notes:
[a] Intersection is operating under the LADOT Adaptive Traffic Control System (ATCS). A credit of 0.10 in V/C ratio was included in the analysis.
[b] Intersection is controlled by stop signs on minor street approaches.

TABLE F-8 (continued)
FUTURE WITH PROJECT WITH TDM WITH BURBANK LONG-TERM IMPROVEMENTS CONDITIONS (YEAR 2030)
BEFORE MITIGATIONS
CITY OF BURBANK INTERSECTIONS - PEAK HOUR LEVELS OF SERVICE

No.		Intersection	Peak Hour	Future without Project		Future with Project, Before TDM Trip Reduction and Mitigations				Future with Project with TDM, Before Mitigations			
				V/C	LOS	V/C	LOS	Change in V/C	Significant Impact?	V/C	LOS	Change in V/C	Significant Impact?
95.	[a]	Buena Vista Street & Olive Avenue	A.M. P.M.	0.974 0.949	E E	0.980 0.955	E E	0.006 0.006	NO NO	0.979 0.954	E E	0.005 0.005	NO NO
153.	[a]	Hollywood Way & Verdugo Avenue	A.M. P.M.	1.049 1.010	F F	1.055 1.019	F F	0.006 0.009	NO NO	1.053 1.016	F F	0.004 0.006	NO NO
154.	[a]	Hollywood Way & Magnolia Boulevard	A.M. P.M.	1.078 1.034	F F	1.085 1.045	F F	0.007 0.011	NO YES	1.083 1.042	F F	0.005 0.008	NO NO
155.	[a]	Buena Vista Street & Verdugo Avenue	A.M. P.M.	0.842 1.007	D F	0.843 1.009	D F	0.001 0.002	NO NO	0.843 1.008	D F	0.001 0.001	NO NO
156.	[a]	Buena Vista Street & Magnolia Boulevard	A.M. P.M.	0.893 1.049	D F	0.895 1.053	D F	0.002 0.004	NO NO	0.895 1.053	D F	0.002 0.004	NO NO
163.	[b]	Bob Hope Drive & SR 134 EB Off-Ramp	A.M. P.M.	0.591 0.629	A B	0.595 0.633	A B	0.004 0.004	NO NO	0.595 0.633	A B	0.004 0.004	NO NO
164.	[c]	SR 134 WB On-Ramp & Alameda Avenue	A.M. P.M.	0.418 0.483	A A	0.424 0.491	A A	0.006 0.008	NO NO	0.423 0.488	A A	0.005 0.005	NO NO
165.	[a]	Hollywood Way & Thornton Avenue	A.M. P.M.	0.977 0.924	E E	0.981 0.929	E E	0.004 0.005	NO NO	0.980 0.928	E E	0.003 0.004	NO NO
166.	[a]	Hollywood Way & Empire Avenue	A.M. P.M.	1.035 1.029	F F	1.043 1.037	F F	0.008 0.008	NO NO	1.040 1.035	F F	0.005 0.006	NO NO
167.	[a]	Hollywood Way & Burbank Boulevard	A.M. P.M.	1.011 1.131	F F	1.016 1.143	F F	0.005 0.012	NO YES	1.015 1.139	F F	0.004 0.008	NO NO
168.	[a]	Buena Vista Street & Empire Avenue	A.M. P.M.	1.072 1.174	F F	1.075 1.176	F F	0.003 0.002	NO NO	1.075 1.176	F F	0.003 0.002	NO NO
169.	[a]	Buena Vista Street & Victory Boulevard	A.M. P.M.	0.909 0.969	E E	0.911 0.971	E E	0.002 0.002	NO NO	0.910 0.971	E E	0.001 0.002	NO NO
170.	[a]	Buena Vista Street & Burbank Boulevard	A.M. P.M.	0.917 0.962	E E	0.922 0.967	E E	0.005 0.005	NO NO	0.920 0.965	E E	0.003 0.003	NO NO
171.	[a]	Victory Boulevard & Olive Avenue	A.M. P.M.	0.928 1.072	E F	0.933 1.076	E F	0.005 0.004	NO NO	0.932 1.075	E F	0.004 0.003	NO NO
172.	[a]	Victory Boulevard & Alameda Avenue	A.M. P.M.	0.788 1.012	C F	0.791 1.014	C F	0.003 0.002	NO NO	0.790 1.014	C F	0.002 0.002	NO NO

Notes:
[a] Intersection is connected to the City of Burbank's Traffic Signal Interconnect & Signal Timing System. A credit of 0.02 in V/C ratio was included in the analysis.
[b] Intersection is controlled by stop signs on minor street approaches.
[c] Intersection is uncontrolled.

TABLE F-8 (continued)
FUTURE WITH PROJECT WITH TDM WITH BURBANK LONG-TERM IMPROVEMENTS CONDITIONS (YEAR 2030)
INTERSECTION IMPACT SUMMARY

Level of Service	Number of Impacted Intersections before TDM and Mitigations		Number of Impacted Intersections with TDM, before Mitigations	
	A.M. Peak Hour	P.M. Peak Hour	A.M. Peak Hour	P.M. Peak Hour
E	1	4	1	3
F	2	3	1	0
Total Peak Hour Impacts	**3**	**7**	**2**	**3**
Total Individual Intersections Impacted	**8**		**4**	

TABLE F-9
FUTURE WITH PROJECT WITH TDM WITH BURBANK LONG-TERM IMPROVEMENTS CONDITIONS (YEAR 2030)
CITY OF BURBANK INTERSECTIONS - PEAK HOUR LEVELS OF SERVICE

No.	Intersection	Peak Hour	Future without Project		Future with Project with TDM, Before Mitigations				Future with Project with Funded Improvements			
			V/C	LOS	V/C	LOS	Change in V/C	Significant Impact?	V/C	LOS	Change in V/C	Significant Impact?
74.	Pass Avenue &	A.M.	0.539	A	0.541	A	0.002	NO	0.558	A	0.019	NO
	Magnolia Boulevard	P.M.	0.800	C	0.809	D	0.009	NO	0.804	D	0.004	NO
75.	Pass Avenue &	A.M.	0.623	B	0.625	B	0.002	NO	0.599	A	-0.024	NO
	Verdugo Lane	P.M.	0.966	E	0.979	E	0.013	YES	0.909	E	-0.057	NO
76.	Pass Avenue &	A.M.	0.503	A	0.512	A	0.009	NO	0.512	A	0.009	NO
	Oak Street	P.M.	0.729	C	0.742	C	0.013	NO	0.742	C	0.013	NO
77. [a]	Evergreen Street/Riverside Drive &	A.M.	1.021	F	1.058	F	0.037	YES	0.622	B	-0.399	NO
	Alameda Avenue	P.M.	0.935	E	0.976	E	0.041	YES	0.937	E	0.002	NO
78.	Pass Avenue &	A.M.	0.569	A	0.579	A	0.010	NO	0.592	A	0.023	NO
	SR 134 EB Off-Ramp	P.M.	0.627	B	0.657	B	0.030	NO	0.657	B	0.030	NO
79. [a]	Pass Avenue &	A.M.	0.832	D	0.845	D	0.013	NO	0.800	C	-0.032	NO
	Alameda Avenue	P.M.	0.965	E	0.985	E	0.020	YES	0.919	E	-0.046	NO
80. [a]	Pass Avenue &	A.M.	0.757	C	0.787	C	0.030	NO	0.616	B	-0.141	NO
	Riverside Drive	P.M.	0.646	B	0.713	C	0.067	NO	0.619	B	-0.027	NO
81. [a]	Olive Avenue &	A.M.	0.598	A	0.626	B	0.028	NO	0.586	A	-0.012	NO
	Pass Avenue	P.M.	0.805	D	0.879	D	0.074	NO	0.848	D	0.043	NO
82. [a]	Olive Avenue &	A.M.	0.654	B	0.706	C	0.052	NO	0.645	B	-0.009	NO
	Warner Brothers Studios Gate 2/Gate 3	P.M.	0.717	C	0.770	C	0.053	NO	0.750	C	0.033	NO
83. [a]	Olive Avenue &	A.M.	0.563	A	0.593	A	0.030	NO	0.525	A	-0.038	NO
	Warner Brothers Studios Gate 1/Lakeside Drive	P.M.	0.731	C	0.809	D	0.078	NO	0.725	C	-0.006	NO
84. [a]	Hollywood Way &	A.M.	1.117	F	1.125	F	0.008	NO	1.098	F	-0.019	NO
	Alameda Avenue	P.M.	0.925	E	0.932	E	0.007	NO	0.902	E	-0.023	NO
85. [a]	Cordova Street/SR 134 WB Off-Ramp &	A.M.	0.787	C	0.792	C	0.005	NO	0.792	C	0.005	NO
	Alameda Avenue	P.M.	0.915	E	0.922	E	0.007	NO	0.922	E	0.007	NO
86. [a]	Hollywood Way &	A.M.	0.699	B	0.722	C	0.023	NO	0.664	B	-0.035	NO
	Olive Avenue	P.M.	0.814	D	0.842	D	0.028	NO	0.793	C	-0.021	NO
87. [a]	Olive Avenue &	A.M.	0.913	E	0.933	E	0.020	YES	0.857	D	-0.056	NO
	Riverside Drive	P.M.	0.854	D	0.869	D	0.015	NO	0.801	D	-0.053	NO
88. [a]	Lima Street &	A.M.	0.482	A	0.485	A	0.003	NO	0.459	A	-0.023	NO
	Olive Avenue	P.M.	0.505	A	0.518	A	0.013	NO	0.489	A	-0.016	NO
89. [a]	Olive Avenue &	A.M.	0.793	C	0.798	C	0.005	NO	0.757	C	-0.036	NO
	Alameda Avenue	P.M.	1.078	F	1.087	F	0.009	NO	0.995	E	-0.083	NO
90.	California Street &	A.M.	0.631	B	0.637	B	0.006	NO	0.637	B	0.006	NO
	Riverside Drive	P.M.	0.743	C	0.752	C	0.009	NO	0.749	C	0.006	NO
91. [a]	Bob Hope Drive &	A.M.	0.698	B	0.703	C	0.005	NO	0.703	C	0.005	NO
	Alameda Avenue	P.M.	0.801	D	0.805	D	0.004	NO	0.805	D	0.004	NO
92. [a]	Buena Vista Street &	A.M.	0.725	C	0.727	C	0.002	NO	0.726	C	0.001	NO
	Alameda Avenue	P.M.	0.817	D	0.821	D	0.004	NO	0.821	D	0.004	NO
93.	Buena Vista Street/SR 134 EB On-Ramp &	A.M.	0.889	D	0.892	D	0.003	NO	0.889	D	0.000	NO
	Riverside Drive/SR 134 WB Ramps	P.M.	0.841	D	0.844	D	0.003	NO	0.840	D	-0.001	NO
94. [b]	SR 134 EB On-Ramp/Screenland Drive &	A.M.	0.769	C	0.770	C	0.001	NO	0.770	C	0.001	NO
	Riverside Drive	P.M.	0.806	D	0.810	D	0.004	NO	0.810	D	0.004	NO

Notes:
[a] Intersection is operating under the LADOT Adaptive Traffic Control System (ATCS). A credit of 0.10 in V/C ratio was included in the analysis.
[b] Intersection is controlled by stop signs on minor street approaches.

TABLE F-9 (continued)
FUTURE WITH PROJECT WITH TDM WITH BURBANK LONG-TERM IMPROVEMENTS CONDITIONS (YEAR 2030)
CITY OF BURBANK INTERSECTIONS - PEAK HOUR LEVELS OF SERVICE

No.		Intersection	Peak Hour	Future without Project		Future with Project, Before TDM Trip Reduction and Mitigations				Future with Project with TDM, Before Mitigations			
				V/C	LOS	V/C	LOS	Change in V/C	Significant Impact?	V/C	LOS	Change in V/C	Significant Impact?
95.	[a]	Buena Vista Street & Olive Avenue	A.M. P.M.	0.974 0.949	E E	0.979 0.954	E E	0.005 0.005	NO NO	0.932 0.906	E E	-0.042 -0.043	NO NO
153.	[a]	Hollywood Way & Verdugo Avenue	A.M. P.M.	1.049 1.010	F F	1.053 1.016	F F	0.004 0.006	NO NO	1.057 1.013	F F	0.008 0.003	NO NO
154.	[a]	Hollywood Way & Magnolia Boulevard	A.M. P.M.	1.078 1.034	F F	1.083 1.042	F F	0.005 0.008	NO NO	1.087 1.042	F F	0.009 0.008	NO NO
155.	[a]	Buena Vista Street & Verdugo Avenue	A.M. P.M.	0.842 1.007	D F	0.843 1.008	D F	0.001 0.001	NO NO	0.845 1.005	D F	0.003 -0.002	NO NO
156.	[a]	Buena Vista Street & Magnolia Boulevard	A.M. P.M.	0.893 1.049	D F	0.895 1.053	D F	0.002 0.004	NO NO	0.896 1.055	D F	0.003 0.006	NO NO
163.	[b]	Bob Hope Drive & SR 134 EB Off-Ramp	A.M. P.M.	0.591 0.629	A B	0.595 0.633	A B	0.004 0.004	NO NO	0.595 0.633	A B	0.004 0.004	NO NO
164.	[c]	SR 134 WB On-Ramp & Alameda Avenue	A.M. P.M.	0.418 0.483	A A	0.423 0.488	A A	0.005 0.005	NO NO	0.423 0.488	A A	0.005 0.005	NO NO
165.	[a]	Hollywood Way & Thornton Avenue	A.M. P.M.	0.977 0.924	E E	0.980 0.928	E E	0.003 0.004	NO NO	0.980 0.928	E E	0.003 0.004	NO NO
166.	[a]	Hollywood Way & Empire Avenue	A.M. P.M.	1.035 1.029	F F	1.040 1.035	F F	0.005 0.006	NO NO	1.040 1.035	F F	0.005 0.006	NO NO
167.	[a]	Hollywood Way & Burbank Boulevard	A.M. P.M.	1.011 1.131	F F	1.015 1.139	F F	0.004 0.008	NO NO	1.019 1.136	F F	0.008 0.005	NO NO
168.	[a]	Buena Vista Street & Empire Avenue	A.M. P.M.	1.072 1.174	F F	1.075 1.176	F F	0.003 0.002	NO NO	1.075 1.176	F F	0.003 0.002	NO NO
169.	[a]	Buena Vista Street & Victory Boulevard	A.M. P.M.	0.909 0.969	E E	0.910 0.971	E E	0.001 0.002	NO NO	0.910 0.971	E E	0.001 0.002	NO NO
170.	[a]	Buena Vista Street & Burbank Boulevard	A.M. P.M.	0.917 0.962	E E	0.920 0.965	E E	0.003 0.003	NO NO	0.918 0.965	E E	0.001 0.003	NO NO
171.	[a]	Victory Boulevard & Olive Avenue	A.M. P.M.	0.928 1.072	E F	0.932 1.075	E F	0.004 0.003	NO NO	0.932 1.077	E F	0.004 0.005	NO NO
172.	[a]	Victory Boulevard & Alameda Avenue	A.M. P.M.	0.788 1.012	C F	0.790 1.014	C F	0.002 0.002	NO NO	0.790 1.014	C F	0.002 0.002	NO NO

Notes:
[a] Intersection is connected to the City of Burbank's Traffic Signal Interconnect & Signal Timing System. A credit of 0.02 in V/C ratio was included in the analysis.
[b] Intersection is controlled by stop signs on minor street approaches.
[c] Intersection is uncontrolled.

TABLE F-9 (continued)
FUTURE WITH PROJECT WITH TDM WITH BURBANK LONG-TERM IMPROVEMENTS CONDITIONS (YEAR 2030)
INTERSECTION IMPACT SUMMARY

Level of Service	Number of Impacted Intersections before TDM and Mitigations		Number of Impacted Intersections before TDM and Mitigations		Number of Intersections with Residual Impacts	
	A.M. Peak Hour	P.M. Peak Hour	A.M. Peak Hour	P.M. Peak Hour	A.M. Peak Hour	P.M. Peak Hour
E	1	4	1	3	0	0
F	2	3	1	0	0	0
Total Peak Hour Impacts	**3**	**7**	**2**	**3**	**0**	**0**
Total Individual Intersections Impacted	**8**		**4**		**0**	

CalcaDB

INTERSECTION DATA SUMMARY SHEET

N/S: Hollywood Way   W/E: Alameda Av   I/S No: 84

AM/PM: AM   Comments: FUTURE (2030) WITHOUT PROJECT

COUNT DATE: STUDY DATE: GROWTH FACTOR:

Volume/Lane/Signal Configurations

	NORTHBOUND LT	NORTHBOUND TH	NORTHBOUND RT	SOUTHBOUND LT	SOUTHBOUND TH	SOUTHBOUND RT	WESTBOUND LT	WESTBOUND TH	WESTBOUND RT	EASTBOUND LT	EASTBOUND TH	EASTBOUND RT
EXISTING	67	347	122	293	1407	351	408	1227	493	238	1068	175
AMBIENT												
RELATED												
PROJECT												
TOTAL	67	347	122	293	1407	351	408	1227	493	238	1068	175

LANE							
NORTHBOUND	2	0	2	0	0	1	0
SOUTHBOUND	2	0	2	0	0	1	0
WESTBOUND	1	0	3	0	0	1	0
EASTBOUND	1	0	2	0	1	0	0

SIGNAL	Phasing	RTOR
NORTHBOUND	Prot-Fix	Auto
SOUTHBOUND	Prot-Fix	Auto
WESTBOUND	Prot-Fix	Auto
EASTBOUND	Prot-Fix	Auto

Critical Movements Diagram

	A	B
SouthBound	704	161
EastBound	414	238
WestBound	412	408
NorthBound	174	37

A = Adjusted Through/Right Volume
B = Adjusted Left Volume
* = ATSAC Benefit

V/C RATIO	LOS
0.00 - 0.60	A
0.61 - 0.70	B
0.71 - 0.80	C
0.81 - 0.90	D
0.91 - 1.00	E

Results

North/South Critical Movements = B(N/B) + A(S/B)

West/East Critical Movements = B(W/B) + A(E/B)

$$V/C = \frac{37 + 704 + 408 + 414}{1375} = 1.137$$

LOS = F

PM_BASE

CalcaDB

July 6, 2011 ,Wednesday 12:01:02 PM

INTERSECTION DATA SUMMARY SHEET

N/S:	Hollywood Way	W/E:	Alameda Av	I/S No:	84
AM/PM:	PM	Comments:	FUTURE (2030) WITHOUT PROJECT		
COUNT DATE:		STUDY DATE:		GROWTH FACTOR:	

Volume/Lane/Signal Configurations

	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	308	864	445	297	602	323	259	1101	632	235	1079	117
AMBIENT												
RELATED												
PROJECT												
TOTAL	308	864	445	297	602	323	259	1101	632	235	1079	117

	NORTHBOUND							SOUTHBOUND							WESTBOUND							EASTBOUND						
LANE	2	0	2	0	0	1	0	2	0	2	0	0	1	0	1	0	3	0	0	1	0	1	0	2	0	1	0	0

	NORTHBOUND		SOUTHBOUND		WESTBOUND		EASTBOUND	
	Phasing	RTOR	Phasing	RTOR	Phasing	RTOR	Phasing	RTOR
SIGNAL	Prot-Fix	Auto	Prot-Fix	Auto	Prot-Fix	Auto	Prot-Fix	Auto

Critical Movements Diagram

	A:	B:
SouthBound	301	163
EastBound	399	235
WestBound	550	259
NorthBound	432	169

V/C RATIO	LOS
0.00 - 0.60	A
0.61 - 0.70	B
0.71 - 0.80	C
0.81 - 0.90	D
0.91 - 1.00	E

A = Adjusted Through/Right Volume
B = Adjusted Left Volume
* = ATSAC Benefit

Results

North/South Critical Movements = A(N/B) + B(S/B)

West/East Critical Movements = A(W/B) + B(E/B)

$$V/C = \frac{432 + 163 + 550 + 235}{1375} = 1.004$$

LOS = F

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AM_MIT

July 6, 2011 ,Wednesday 12:09:32 PM

CalcaDB

INTERSECTION DATA SUMMARY SHEET

N/S: Hollywood Way | W/E: Alameda Av | I/S No: 84

AM/PM: AM | Comments: FUTURE (2030) W/PROJECT TDM FUNDED MIT

COUNT DATE: | STUDY DATE: | GROWTH FACTOR:

Volume/Lane/Signal Configurations

	NORTHBOUND LT	NORTHBOUND TH	NORTHBOUND RT	SOUTHBOUND LT	SOUTHBOUND TH	SOUTHBOUND RT	WESTBOUND LT	WESTBOUND TH	WESTBOUND RT	EASTBOUND LT	EASTBOUND TH	EASTBOUND RT
EXISTING	69	360	136	293	1430	352	409	1240	493	238	1075	175
AMBIENT												
RELATED												
PROJECT												
TOTAL	69	360	136	293	1430	352	409	1240	493	238	1075	175

LANE

	NORTHBOUND	SOUTHBOUND	WESTBOUND	EASTBOUND
LANE	2 0 2 0 0 1 0	2 0 2 0 0 1 0	1 0 3 0 0 1 0	1 0 2 0 1 0 0

SIGNAL	Phasing	RTOR
NORTHBOUND	Prot-Fix	Auto
SOUTHBOUND	Prot-Fix	Auto
WESTBOUND	Prot-Fix	Auto
EASTBOUND	Prot-Fix	Auto

Critical Movements Diagram

	A	B
SouthBound	715	161
EastBound	417	238
WestBound	413	409
NorthBound	180	38

A = Adjusted Through/Right Volume
B = Adjusted Left Volume
* = ATSAC Benefit

V/C RATIO	LOS
0.00 - 0.60	A
0.61 - 0.70	B
0.71 - 0.80	C
0.81 - 0.90	D
0.91 - 1.00	E

Results

North/South Critical Movements = B(N/B) + A(S/B)

West/East Critical Movements = B(W/B) + A(E/B)

$$V/C = \frac{38 + 715 + 409 + 417}{1375} = 1.148$$

LOS = F

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PM_MIT

July 6, 2011 ,Wednesday 12:10:34 PM

CalcaDB

INTERSECTION DATA SUMMARY SHEET

N/S: Hollywood Way W/E: Alameda Av I/S No: 84

AM/PM: PM Comments: FUTURE (2030) W/PROJECT TDM FUNDED MIT

COUNT DATE: STUDY DATE: GROWTH FACTOR:

Volume/Lane/Signal Configurations

	NORTHBOUND LT	NORTHBOUND TH	NORTHBOUND RT	SOUTHBOUND LT	SOUTHBOUND TH	SOUTHBOUND RT	WESTBOUND LT	WESTBOUND TH	WESTBOUND RT	EASTBOUND LT	EASTBOUND TH	EASTBOUND RT
EXISTING	308	883	447	297	699	323	262	1107	632	235	1095	117
AMBIENT												
RELATED												
PROJECT												
TOTAL	308	883	447	297	699	323	262	1107	632	235	1095	117

LANE	NB	SB	WB	EB
	2 0 2 0 0 1 0	2 0 2 0 0 1 0	1 0 3 0 0 1 0	1 0 2 0 1 0 0

SIGNAL	NB	SB	WB	EB
Phasing	Prot-Fix	Prot-Fix	Prot-Fix	Prot-Fix
RTOR	Auto	Auto	Auto	Auto

Critical Movements Diagram

	A	B
SouthBound	350	163
EastBound	404	235
WestBound	550	262
NorthBound	442	169

A = Adjusted Through/Right Volume
B = Adjusted Left Volume
* = ATSAC Benefit

V/C RATIO	LOS
0.00 - 0.60	A
0.61 - 0.70	B
0.71 - 0.80	C
0.81 - 0.90	D
0.91 - 1.00	E

Results

North/South Critical Movements = A(N/B) + B(S/B)

West/East Critical Movements = A(W/B) + B(E/B)

$$V/C = \frac{442 + 163 + 550 + 235}{1375} = 1.011$$

LOS = F

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CalcaDB

INTERSECTION DATA SUMMARY SHEET

N/S: Hollywood Way W/E: Alameda Av I/S No: 84

AM/PM: AM Comments: FUTURE (2030) WITH PROJECT

COUNT DATE: STUDY DATE: GROWTH FACTOR:

Volume/Lane/Signal Configurations

	NORTHBOUND LT	NORTHBOUND TH	NORTHBOUND RT	SOUTHBOUND LT	SOUTHBOUND TH	SOUTHBOUND RT	WESTBOUND LT	WESTBOUND TH	WESTBOUND RT	EASTBOUND LT	EASTBOUND TH	EASTBOUND RT
EXISTING	69	364	140	293	1425	353	409	1247	493	238	1077	175
AMBIENT												
RELATED												
PROJECT												
TOTAL	69	364	140	293	1425	353	409	1247	493	238	1077	175

LANE							
NORTHBOUND	2	0	2	0	0	1	0
SOUTHBOUND	2	0	2	0	0	1	0
WESTBOUND	1	0	3	0	0	1	0
EASTBOUND	1	0	2	0	1	0	0

SIGNAL	Phasing	RTOR
NORTHBOUND	Prot-Fix	Auto
SOUTHBOUND	Prot-Fix	Auto
WESTBOUND	Prot-Fix	Auto
EASTBOUND	Prot-Fix	Auto

Critical Movements Diagram

	A	B
SouthBound	713	161
EastBound	417	238
WestBound	416	409
NorthBound	182	38

V/C RATIO	LOS
0.00 - 0.60	A
0.61 - 0.70	B
0.71 - 0.80	C
0.81 - 0.90	D
0.91 - 1.00	E

A = Adjusted Through/Right Volume
B = Adjusted Left Volume
* = ATSAC Benefit

Results

North/South Critical Movements = B(N/B) + A(S/B)

West/East Critical Movements = B(W/B) + A(E/B)

$$V/C = \frac{38 + 713 + 409 + 417}{1375} = 1.147$$

LOS = F

CalcaDB

INTERSECTION DATA SUMMARY SHEET

N/S: Hollywood Way
W/E: Alameda Av
I/S No: 84
AM/PM: PM
Comments: FUTURE (2030) WITH PROJECT
COUNT DATE:
STUDY DATE:
GROWTH FACTOR:

Volume/Lane/Signal Configurations

	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	309	889	448	297	629	323	262	1125	632	236	1108	117
AMBIENT												
RELATED												
PROJECT												
TOTAL	309	889	448	297	629	323	262	1125	632	236	1108	117

	NORTHBOUND							SOUTHBOUND							WESTBOUND							EASTBOUND						
LANE	2	0	2	0	0	1	0	2	0	2	0	0	1	0	1	0	3	0	0	1	0	1	0	2	0	1	0	0

	NORTHBOUND Phasing	NORTHBOUND RTOR	SOUTHBOUND Phasing	SOUTHBOUND RTOR	WESTBOUND Phasing	WESTBOUND RTOR	EASTBOUND Phasing	EASTBOUND RTOR
SIGNAL	Prot-Fix	Auto	Prot-Fix	Auto	Prot-Fix	Auto	Prot-Fix	Auto

Critical Movements Diagram

SouthBound
A: 315
B: 163

EastBound
A: 408
B: 236

WestBound
A: 550
B: 262

NorthBound
A: 445
B: 170

V/C RATIO	LOS
0.00 - 0.60	A
0.61 - 0.70	B
0.71 - 0.80	C
0.81 - 0.90	D
0.91 - 1.00	E

A = Adjusted Through/Right Volume
B = Adjusted Left Volume
* = ATSAC Benefit

Results

North/South Critical Movements = A(N/B) + B(S/B)

West/East Critical Movements = A(W/B) + B(E/B)

$$V/C = \frac{445 + 163 + 550 + 236}{1375} = 1.014$$

LOS = F

CalcaDB

July 6, 2011 ,Wednesday 12:04:22 PM

INTERSECTION DATA SUMMARY SHEET

N/S: Hollywood Way W/E: Alameda Av I/S No: 84

AM/PM: AM Comments: FUTURE (2030) WITH PROJECT TDM

COUNT DATE: STUDY DATE: GROWTH FACTOR:

Volume/Lane/Signal Configurations

	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	69	360	136	293	1420	352	409	1240	493	238	1075	175
AMBIENT												
RELATED												
PROJECT												
TOTAL	69	360	136	293	1420	352	409	1240	493	238	1075	175

	NB							SB							WB							EB						
LANE	2	0	2	0	0	1	0	2	0	2	0	0	1	0	1	0	3	0	0	1	0	1	0	2	0	1	0	0

	NB Phasing	NB RTOR	SB Phasing	SB RTOR	WB Phasing	WB RTOR	EB Phasing	EB RTOR
SIGNAL	Prot-Fix	Auto	Prot-Fix	Auto	Prot-Fix	Auto	Prot-Fix	Auto

Critical Movements Diagram

SouthBound
A: 710
B: 161

EastBound
A: 417
B: 238

WestBound
A: 413
B: 409

NorthBound
A: 180
B: 38

V/C RATIO	LOS
0.00 - 0.60	A
0.61 - 0.70	B
0.71 - 0.80	C
0.81 - 0.90	D
0.91 - 1.00	E

A = Adjusted Through/Right Volume
B = Adjusted Left Volume
* = ATSAC Benefit

Results

North/South Critical Movements = B(N/B) + A(S/B)

West/East Critical Movements = B(W/B) + A(E/B)

$$V/C = \frac{38 + 710 + 409 + 417}{1375} = 1.145$$

LOS = F

CalcaDB

INTERSECTION DATA SUMMARY SHEET

N/S:	Hollywood Way	W/E:	Alameda Av	I/S No:	84
AM/PM:	PM	Comments:	FUTURE (2030) WITH PROJECT TDM		
COUNT DATE:		STUDY DATE:		GROWTH FACTOR:	

Volume/Lane/Signal Configurations

	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	308	883	447	297	624	323	262	1122	632	235	1095	117
AMBIENT												
RELATED												
PROJECT												
TOTAL	308	883	447	297	624	323	262	1122	632	235	1095	117

	NORTHBOUND							SOUTHBOUND							WESTBOUND							EASTBOUND						
LANE	2	0	2	0	0	1	0	2	0	2	0	0	1	0	1	0	3	0	0	1	0	1	0	2	0	1	0	0

	NB Phasing	NB RTOR	SB Phasing	SB RTOR	WB Phasing	WB RTOR	EB Phasing	EB RTOR
SIGNAL	Prot-Fix	Auto	Prot-Fix	Auto	Prot-Fix	Auto	Prot-Fix	Auto

Critical Movements Diagram

	A:	B:
SouthBound	312	163
EastBound	404	235
WestBound	550	262
NorthBound	442	169

A = Adjusted Through/Right Volume
B = Adjusted Left Volume
* = ATSAC Benefit

V/C RATIO	LOS
0.00 - 0.60	A
0.61 - 0.70	B
0.71 - 0.80	C
0.81 - 0.90	D
0.91 - 1.00	E

Results

North/South Critical Movements = A(N/B) + B(S/B)

West/East Critical Movements = A(W/B) + B(E/B)

$$V/C = \frac{442 + 163 + 550 + 235}{1375} = 1.011$$

LOS = F

CalcaDB

INTERSECTION DATA SUMMARY SHEET

N/S: Cordova St/SR 134 WB Off-Ramp   W/E: Alameda Av   I/S No: 85

AM/PM: AM   Comments: FUTURE (2030) WITHOUT PROJECT

COUNT DATE: STUDY DATE: GROWTH FACTOR:

Volume/Lane/Signal Configurations

	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	1064	0	375	0	0	30	0	1069	0	6	1082	427
AMBIENT												
RELATED												
PROJECT												
TOTAL	1064	0	375	0	0	30	0	1069	0	6	1082	427

LANE	NORTHBOUND	SOUTHBOUND	WESTBOUND	EASTBOUND
	2 0 0 0 0 1 0	0 0 0 0 0 1 0	0 0 2 0 0 0 0	1 0 2 0 0 1 0

SIGNAL	Phasing	RTOR	Phasing	RTOR	Phasing	RTOR	Phasing	RTOR
	Perm	Auto	Perm	OLA	Perm	Auto	Prot-Fix	Auto

Critical Movements Diagram

	A	B
SouthBound	24	0
EastBound	541	6
WestBound	535	0
NorthBound	375	585

A = Adjusted Through/Right Volume
B = Adjusted Left Volume
* = ATSAC Benefit

V/C RATIO	LOS
0.00 - 0.60	A
0.61 - 0.70	B
0.71 - 0.80	C
0.81 - 0.90	D
0.91 - 1.00	E

Results

North/South Critical Movements = B(N/B) + A(S/B)

West/East Critical Movements = B(W/B) + A(E/B)

$$V/C = \frac{585 + 24 + 0 + 541}{1425} = 0.807$$

LOS = D

CalcaDB

July 6, 2011 ,Wednesday 12:07:51 PM

INTERSECTION DATA SUMMARY SHEET

N/S: Cordova St/SR 134 WB Off-Ramp W/E: Alameda Av I/S No: 85

AM/PM: PM Comments: FUTURE (2030) WITHOUT PROJECT

COUNT DATE: STUDY DATE: GROWTH FACTOR:

Volume/Lane/Signal Configurations

	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	844	0	89	0	0	54	0	1116	0	6	1037	820
AMBIENT												
RELATED												
PROJECT												
TOTAL	844	0	89	0	0	54	0	1116	0	6	1037	820

	NB							SB							WB							EB						
LANE	2	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	2	0	0	0	0	1	0	2	0	0	1	0

	NB Phasing	NB RTOR	SB Phasing	SB RTOR	WB Phasing	WB RTOR	EB Phasing	EB RTOR
SIGNAL	Perm	Auto	Perm	OLA	Perm	Auto	Prot-Fix	Auto

Critical Movements Diagram

	A	B
SouthBound	48	0
EastBound	820	6
WestBound	558	0
NorthBound	89	464

A = Adjusted Through/Right Volume
B = Adjusted Left Volume
* = ATSAC Benefit

V/C RATIO	LOS
0.00 - 0.60	A
0.61 - 0.70	B
0.71 - 0.80	C
0.81 - 0.90	D
0.91 - 1.00	E

Results

North/South Critical Movements = B(N/B) + A(S/B)

West/East Critical Movements = B(W/B) + A(E/B)

$$V/C = \frac{464 + 48 + 0 + 820}{1425} = 0.935$$

LOS = E

CalcaDB

INTERSECTION DATA SUMMARY SHEET

N/S: Cordova St/SR 134 WB Off-Ramp W/E: Alameda Av I/S No: 85

AM/PM: AM Comments: FUTURE (2030) W/PROJECT TDM FUNDED MIT

COUNT DATE: STUDY DATE: GROWTH FACTOR:

Volume/Lane/Signal Configurations

	NORTHBOUND LT	NORTHBOUND TH	NORTHBOUND RT	SOUTHBOUND LT	SOUTHBOUND TH	SOUTHBOUND RT	WESTBOUND LT	WESTBOUND TH	WESTBOUND RT	EASTBOUND LT	EASTBOUND TH	EASTBOUND RT
EXISTING	1064	0	375	0	0	31	0	1082	0	6	1089	441
AMBIENT												
RELATED												
PROJECT												
TOTAL	1064	0	375	0	0	31	0	1082	0	6	1089	441

LANE	NB	SB	WB	EB
	2 0 0 0 0 1 0	0 0 0 0 0 1 0	0 0 2 0 0 0 0	1 0 2 0 0 1 0

SIGNAL	NB Phasing	NB RTOR	SB Phasing	SB RTOR	WB Phasing	WB RTOR	EB Phasing	EB RTOR
	Perm	Auto	Perm	OLA	Perm	Auto	Prot-Fix	Auto

Critical Movements Diagram

	A	B
SouthBound	25	0
EastBound	545	6
WestBound	541	0
NorthBound	375	585

V/C RATIO	LOS
0.00 - 0.60	A
0.61 - 0.70	B
0.71 - 0.80	C
0.81 - 0.90	D
0.91 - 1.00	E

A = Adjusted Through/Right Volume
B = Adjusted Left Volume
* = ATSAC Benefit

Results

North/South Critical Movements = B(N/B) + A(S/B)

West/East Critical Movements = A(W/B) + B(E/B)

$$V/C = \frac{585 + 25 + 541 + 6}{1425} = 0.812$$

LOS = D

CalcaDB

INTERSECTION DATA SUMMARY SHEET

N/S: Cordova St/SR 134 WB Off-Ramp   W/E: Alameda Av   I/S No: 85

AM/PM: PM   Comments: FUTURE (2030) W/PROJECT TDM FUNDED MIT

COUNT DATE: STUDY DATE: GROWTH FACTOR:

Volume/Lane/Signal Configurations

	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	859	0	89	0	0	57	0	1107	0	8	1053	821
AMBIENT												
RELATED												
PROJECT												
TOTAL	859	0	89	0	0	57	0	1107	0	8	1053	821

	NORTHBOUND							SOUTHBOUND							WESTBOUND							EASTBOUND						
LANE	2	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	2	0	0	0	0	1	0	2	0	0	1	0

	NORTHBOUND		SOUTHBOUND		WESTBOUND		EASTBOUND	
	Phasing	RTOR	Phasing	RTOR	Phasing	RTOR	Phasing	RTOR
SIGNAL	Perm	Auto	Perm	OLA	Perm	Auto	Prot-Fix	Auto

Critical Movements Diagram

SouthBound
A: 49
B: 0

EastBound
A: 821
B: 8

WestBound
A: 554
B: 0

NorthBound
A: 89
B: 472

A = Adjusted Through/Right Volume
B = Adjusted Left Volume
* = ATSAC Benefit

V/C RATIO	LOS
0.00 - 0.60	A
0.61 - 0.70	B
0.71 - 0.80	C
0.81 - 0.90	D
0.91 - 1.00	E

Results

North/South Critical Movements = B(N/B) + A(S/B)

West/East Critical Movements = B(W/B) + A(E/B)

$$V/C = \frac{472 + 49 + 0 + 821}{1425} = 0.942$$

LOS = E

Developed by Chun Wong, 12/94

CalcaDB

July 6, 2011 ,Wednesday 12:07:29 PM

INTERSECTION DATA SUMMARY SHEET

N/S: Cordova St/SR 134 WB Off-Ramp W/E: Alameda Av I/S No: 85

AM/PM: AM Comments: FUTURE (2030) WITH PROJECT

COUNT DATE: STUDY DATE: GROWTH FACTOR:

Volume/Lane/Signal Configurations

	NORTHBOUND LT	NORTHBOUND TH	NORTHBOUND RT	SOUTHBOUND LT	SOUTHBOUND TH	SOUTHBOUND RT	WESTBOUND LT	WESTBOUND TH	WESTBOUND RT	EASTBOUND LT	EASTBOUND TH	EASTBOUND RT
EXISTING	1064	0	375	0	0	31	0	1089	0	6	1091	445
AMBIENT												
RELATED												
PROJECT												
TOTAL	1064	0	375	0	0	31	0	1089	0	6	1091	445

LANE							
NORTHBOUND	2	0	0	0	0	1	0
SOUTHBOUND	0	0	0	0	0	1	0
WESTBOUND	0	0	2	0	0	0	0
EASTBOUND	1	0	2	0	0	1	0

SIGNAL	NORTHBOUND	SOUTHBOUND	WESTBOUND	EASTBOUND
Phasing	Perm	Perm	Perm	Prot-Fix
RTOR	Auto	OLA	Auto	Auto

Critical Movements Diagram

	A	B
SouthBound	25	0
EastBound	546	6
WestBound	545	0
NorthBound	375	585

A = Adjusted Through/Right Volume
B = Adjusted Left Volume
* = ATSAC Benefit

V/C RATIO	LOS
0.00 - 0.60	A
0.61 - 0.70	B
0.71 - 0.80	C
0.81 - 0.90	D
0.91 - 1.00	E

Results

North/South Critical Movements = B(N/B) + A(S/B)

West/East Critical Movements = A(W/B) + B(E/B)

$$V/C = \frac{585 + 25 + 545 + 6}{1425} = 0.815$$

LOS = D

CalcaDB

INTERSECTION DATA SUMMARY SHEET

N/S: Cordova St/SR 134 WB Off-Ramp
W/E: Alameda Av
I/S No: 85

AM/PM: PM
Comments: FUTURE (2030) WITH PROJECT

COUNT DATE:
STUDY DATE:
GROWTH FACTOR:

Volume/Lane/Signal Configurations

	NORTHBOUND LT	NORTHBOUND TH	NORTHBOUND RT	SOUTHBOUND LT	SOUTHBOUND TH	SOUTHBOUND RT	WESTBOUND LT	WESTBOUND TH	WESTBOUND RT	EASTBOUND LT	EASTBOUND TH	EASTBOUND RT
EXISTING	859	0	89	0	0	58	0	1124	0	8	1066	821
AMBIENT												
RELATED												
PROJECT												
TOTAL	859	0	89	0	0	58	0	1124	0	8	1066	821

LANE	NB	SB	WB	EB
LANE	2 0 0 0 0 1 0	0 0 0 0 0 1 0	0 0 2 0 0 0 0	1 0 2 0 0 1 0

SIGNAL	NB Phasing	NB RTOR	SB Phasing	SB RTOR	WB Phasing	WB RTOR	EB Phasing	EB RTOR
SIGNAL	Perm	Auto	Perm	OLA	Perm	Auto	Prot-Fix	Auto

Critical Movements Diagram

	A	B
SouthBound	50	0
EastBound	821	8
WestBound	562	0
NorthBound	89	472

A = Adjusted Through/Right Volume
B = Adjusted Left Volume
* = ATSAC Benefit

V/C RATIO	LOS
0.00 - 0.60	A
0.61 - 0.70	B
0.71 - 0.80	C
0.81 - 0.90	D
0.91 - 1.00	E

Results

North/South Critical Movements = B(N/B) + A(S/B)

West/East Critical Movements = B(W/B) + A(E/B)

$$V/C = \frac{472 + 50 + 0 + 821}{1425} = 0.942$$

LOS = E

Developed by Chun Wong, 12/94

July 6, 2011 ,Wednesday 12:04:14 PM

CalcaDB

INTERSECTION DATA SUMMARY SHEET

N/S: Cordova St/SR 134 WB Off-Ramp   W/E: Alameda Av   I/S No: 85

AM/PM: AM   Comments: FUTURE (2030) WITH PROJECT TDM

COUNT DATE: STUDY DATE: GROWTH FACTOR:

Volume/Lane/Signal Configurations

	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	1064	0	375	0	0	31	0	1082	0	6	1089	441
AMBIENT												
RELATED												
PROJECT												
TOTAL	1064	0	375	0	0	31	0	1082	0	6	1089	441

	NORTHBOUND							SOUTHBOUND							WESTBOUND							EASTBOUND						
LANE	2	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	2	0	0	0	0	1	0	2	0	0	1	0

	NORTHBOUND		SOUTHBOUND		WESTBOUND		EASTBOUND	
	Phasing	RTOR	Phasing	RTOR	Phasing	RTOR	Phasing	RTOR
SIGNAL	Perm	Auto	Perm	OLA	Perm	Auto	Prot-Fix	Free

Critical Movements Diagram

SouthBound
A: 25
B: 0

EastBound
A: 545
B: 6

WestBound
A: 541
B: 0

NorthBound
A: 375
B: 585

A = Adjusted Through/Right Volume
B = Adjusted Left Volume
* = ATSAC Benefit

V/C RATIO	LOS
0.00 - 0.60	A
0.61 - 0.70	B
0.71 - 0.80	C
0.81 - 0.90	D
0.91 - 1.00	E

Results

North/South Critical Movements = B(N/B) + A(S/B)

West/East Critical Movements = A(W/B) + B(E/B)

$$V/C = \frac{585 + 25 + 541 + 6}{1425} = 0.812$$

LOS = D

CalcaDB

July 6, 2011 ,Wednesday 12:08:44 PM

INTERSECTION DATA SUMMARY SHEET

N/S: Cordova St/SR 134 WB Off-Ramp W/E: Alameda Av I/S No: 85

AM/PM: PM Comments: FUTURE (2030) WITH PROJECT TDM

COUNT DATE: STUDY DATE: GROWTH FACTOR:

Volume/Lane/Signal Configurations

	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	859	0	89	0	0	57	0	1122	0	8	1053	821
AMBIENT												
RELATED												
PROJECT												
TOTAL	859	0	89	0	0	57	0	1122	0	8	1053	821

	NORTHBOUND							SOUTHBOUND							WESTBOUND							EASTBOUND						
LANE	2	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	2	0	0	0	0	1	0	2	0	0	1	0

	NB Phasing	NB RTOR	SB Phasing	SB RTOR	WB Phasing	WB RTOR	EB Phasing	EB RTOR
SIGNAL	Perm	Auto	Perm	OLA	Perm	Auto	Prot-Fix	Auto

Critical Movements Diagram

	A	B
SouthBound	49	0
EastBound	821	8
WestBound	561	0
NorthBound	89	472

A = Adjusted Through/Right Volume
B = Adjusted Left Volume
* = ATSAC Benefit

V/C RATIO	LOS
0.00 - 0.60	A
0.61 - 0.70	B
0.71 - 0.80	C
0.81 - 0.90	D
0.91 - 1.00	E

Results

North/South Critical Movements = B(N/B) + A(S/B)

West/East Critical Movements = B(W/B) + A(E/B)

$$V/C = \frac{472 + 49 + 0 + 821}{1425} = 0.942$$

LOS = E

AM_BASE

CalcaDB

July 6, 2011 ,Wednesday 12:12:38 PM

INTERSECTION DATA SUMMARY SHEET

N/S: SR-134 WB On-Ramp | W/E: Alameda Av | I/S No: 164

AM/PM: AM | Comments: FUTURE (2030) WITHOUT PROJECT

COUNT DATE: | STUDY DATE: | GROWTH FACTOR:

Volume/Lane/Signal Configurations

	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	0	0	0	0	0	0	0	1058	446	0	1112	0
AMBIENT												
RELATED												
PROJECT												
TOTAL	0	0	0	0	0	0	0	1058	446	0	1112	0

LANE							
NORTHBOUND	0	0	0	0	0	0	0
SOUTHBOUND	0	0	0	0	0	0	0
WESTBOUND	0	0	2	0	1	0	0
EASTBOUND	0	0	3	0	0	0	0

SIGNAL	NB Phasing	NB RTOR	SB Phasing	SB RTOR	WB Phasing	WB RTOR	EB Phasing	EB RTOR
	<none>	<none>	<none>	<none>	Perm	Auto	Perm	<none>

Critical Movements Diagram

	A:	B:
SouthBound	0	0
EastBound	371	0
WestBound	501	0
NorthBound	0	0

V/C RATIO	LOS
0.00 - 0.60	A
0.61 - 0.70	B
0.71 - 0.80	C
0.81 - 0.90	D
0.91 - 1.00	E

A = Adjusted Through/Right Volume
B = Adjusted Left Volume
* = ATSAC Benefit

Results

North/South Critical Movements = +

West/East Critical Movements = A(W/B) + B(E/B)

V/C = (+ + 501 + 0) / 1200 = 0.418

LOS = A

Developed by Chun Wong, 12/94

PM_BASE

July 6, 2011 ,Wednesday 12:13:18 PM

CalcaDB

INTERSECTION DATA SUMMARY SHEET

N/S: SR-134 WB On-Ramp | W/E: Alameda Av | I/S No: 164

AM/PM: PM | Comments: FUTURE (2030) WITHOUT PROJECT

COUNT DATE: | STUDY DATE: | GROWTH FACTOR:

Volume/Lane/Signal Configurations

	NORTHBOUND LT	NORTHBOUND TH	NORTHBOUND RT	SOUTHBOUND LT	SOUTHBOUND TH	SOUTHBOUND RT	WESTBOUND LT	WESTBOUND TH	WESTBOUND RT	EASTBOUND LT	EASTBOUND TH	EASTBOUND RT
EXISTING	0	0	0	0	0	0	0	1109	438	0	1737	0
AMBIENT												
RELATED												
PROJECT												
TOTAL	0	0	0	0	0	0	0	1109	438	0	1737	0

LANE							
NORTHBOUND	0	0	0	0	0	0	0
SOUTHBOUND	0	0	0	0	0	0	0
WESTBOUND	0	0	2	0	1	0	0
EASTBOUND	0	0	3	0	0	0	0

SIGNAL	NB Phasing	NB RTOR	SB Phasing	SB RTOR	WB Phasing	WB RTOR	EB Phasing	EB RTOR
	<none>	<none>	<none>	<none>	Perm	Auto	Perm	<none>

Critical Movements Diagram

	A	B
SouthBound	0	0
EastBound	579	0
WestBound	516	0
NorthBound	0	0

A = Adjusted Through/Right Volume
B = Adjusted Left Volume
* = ATSAC Benefit

V/C RATIO	LOS
0.00 - 0.60	A
0.61 - 0.70	B
0.71 - 0.80	C
0.81 - 0.90	D
0.91 - 1.00	E

Results

North/South Critical Movements = +

West/East Critical Movements = B(W/B) + A(E/B)

$$V/C = \frac{+ \quad + \quad 0 \quad + \quad 579}{1200} = 0.483$$

LOS = A

CalcaDB

INTERSECTION DATA SUMMARY SHEET

N/S: SR-134 WB On-Ramp | W/E: Alameda Av | I/S No: 164

AM/PM: AM | Comments: FUTURE (2030) W/PROJECT TDM FUNDED MIT

COUNT DATE: | STUDY DATE: | GROWTH FACTOR:

Volume/Lane/Signal Configurations

	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	0	0	0	0	0	0	0	1072	448	0	1120	0
AMBIENT												
RELATED												
PROJECT												
TOTAL	0	0	0	0	0	0	0	1072	448	0	1120	0

	NORTHBOUND	SOUTHBOUND	WESTBOUND	EASTBOUND
LANE	0 0 0 0 0 0 0	0 0 0 0 0 0 0	0 0 2 0 1 0 0	0 0 3 0 0 0 0

	NB Phasing	NB RTOR	SB Phasing	SB RTOR	WB Phasing	WB RTOR	EB Phasing	EB RTOR
SIGNAL	<none>	<none>	<none>	<none>	Perm	Auto	Perm	<none>

Critical Movements Diagram

	A:	B:
SouthBound	0	0
EastBound	373	0
WestBound	507	0
NorthBound	0	0

A = Adjusted Through/Right Volume
B = Adjusted Left Volume
* = ATSAC Benefit

V/C RATIO	LOS
0.00 - 0.60	A
0.61 - 0.70	B
0.71 - 0.80	C
0.81 - 0.90	D
0.91 - 1.00	E

Results

North/South Critical Movements = +

West/East Critical Movements = A(W/B) + B(E/B)

$$V/C = \frac{+ \quad + \quad 507 \quad + \quad 0}{1200} = 0.423$$

LOS = A

July 6, 2011 ,Wednesday 12:16:45 PM

CalcaDB

INTERSECTION DATA SUMMARY SHEET

N/S: SR-134 WB On-Ramp W/E: Alameda Av I/S No: 164

AM/PM: PM Comments: FUTURE (2030) W/PROJECT TDM FUNDED MIT

COUNT DATE: STUDY DATE: GROWTH FACTOR:

Volume/Lane/Signal Configurations

	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	0	0	0	0	0	0	0	1115	438	0	1755	0
AMBIENT												
RELATED												
PROJECT												
TOTAL	0	0	0	0	0	0	0	1115	438	0	1755	0

	NORTHBOUND							SOUTHBOUND							WESTBOUND							EASTBOUND						
LANE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	1	0	0	0	0	3	0	0	0	0

	NORTHBOUND		SOUTHBOUND		WESTBOUND		EASTBOUND	
	Phasing	RTOR	Phasing	RTOR	Phasing	RTOR	Phasing	RTOR
SIGNAL	<none>	<none>	<none>	<none>	Perm	Auto	Perm	<none>

Critical Movements Diagram

	A	B
SouthBound	0	0
EastBound	585	0
WestBound	518	0
NorthBound	0	0

V/C RATIO	LOS
0.00 - 0.60	A
0.61 - 0.70	B
0.71 - 0.80	C
0.81 - 0.90	D
0.91 - 1.00	E

A = Adjusted Through/Right Volume
B = Adjusted Left Volume
* = ATSAC Benefit

Results

North/South Critical Movements = +

West/East Critical Movements = B(W/B) + A(E/B)

V/C = (+ + 0 + 585) / 1200 = 0.488 LOS = A

Developed by Chun Wong, 12/94

CalcaDB

INTERSECTION DATA SUMMARY SHEET

N/S:	SR-134 WB On-Ramp	W/E:	Alameda Av	I/S No:	164
AM/PM:	AM	Comments:	FUTURE (2030) WITH PROJECT		
COUNT DATE:		STUDY DATE:		GROWTH FACTOR:	

Volume/Lane/Signal Configurations

	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	0	0	0	0	0	0	0	1080	448	0	1122	0
AMBIENT												
RELATED												
PROJECT												
TOTAL	0	0	0	0	0	0	0	1080	448	0	1122	0

	NORTHBOUND							SOUTHBOUND							WESTBOUND							EASTBOUND						
LANE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	1	0	0	0	0	3	0	0	0	0

	NORTHBOUND		SOUTHBOUND		WESTBOUND		EASTBOUND	
	Phasing	RTOR	Phasing	RTOR	Phasing	RTOR	Phasing	RTOR
SIGNAL	<none>	<none>	<none>	<none>	Perm	Auto	Perm	<none>

Critical Movements Diagram

	A	B
SouthBound	0	0
EastBound	374	0
WestBound	509	0
NorthBound	0	0

A = Adjusted Through/Right Volume
B = Adjusted Left Volume
* = ATSAC Benefit

V/C RATIO	LOS
0.00 - 0.60	A
0.61 - 0.70	B
0.71 - 0.80	C
0.81 - 0.90	D
0.91 - 1.00	E

Results

North/South Critical Movements = +

West/East Critical Movements = A(W/B) + B(E/B)

$$V/C = \frac{+ \quad + \quad 509 \quad + \quad 0}{1200} = 0.424$$

LOS = A

PM_PROJ

CalcaDB

July 6, 2011 ,Wednesday 12:14:37 PM

INTERSECTION DATA SUMMARY SHEET

N/S: SR-134 WB On-Ramp W/E: Alameda Av I/S No: 164

AM/PM: PM Comments: FUTURE (2030) WITH PROJECT

COUNT DATE: STUDY DATE: GROWTH FACTOR:

Volume/Lane/Signal Configurations

	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	0	0	0	0	0	0	0	1133	439	0	1768	0
AMBIENT												
RELATED												
PROJECT												
TOTAL	0	0	0	0	0	0	0	1133	439	0	1768	0

	NORTHBOUND							SOUTHBOUND							WESTBOUND							EASTBOUND						
LANE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	1	0	0	0	0	3	0	0	0	0

	NB Phasing	NB RTOR	SB Phasing	SB RTOR	WB Phasing	WB RTOR	EB Phasing	EB RTOR
SIGNAL	<none>	<none>	<none>	<none>	Perm	Auto	Perm	<none>

Critical Movements Diagram

SouthBound
A: 0
B: 0

EastBound
A: 589
B: 0

WestBound
A: 524
B: 0

NorthBound
A: 0
B: 0

A = Adjusted Through/Right Volume
B = Adjusted Left Volume
* = ATSAC Benefit

V/C RATIO	LOS
0.00 - 0.60	A
0.61 - 0.70	B
0.71 - 0.80	C
0.81 - 0.90	D
0.91 - 1.00	E

Results

North/South Critical Movements = +

West/East Critical Movements = B(W/B) + A(E/B)

V/C = (+ + 0 + 589) / 1200 = 0.491 LOS = A

Developed by Chun Wong, 12/94

CalcaDB

INTERSECTION DATA SUMMARY SHEET

N/S: SR-134 WB On-Ramp
W/E: Alameda Av
I/S No: 164
AM/PM: AM
Comments: FUTURE (2030) WITH PROJECT TDM
COUNT DATE:
STUDY DATE:
GROWTH FACTOR:

Volume/Lane/Signal Configurations

	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	0	0	0	0	0	0	0	1072	448	0	1120	0
AMBIENT												
RELATED												
PROJECT												
TOTAL	0	0	0	0	0	0	0	1072	448	0	1120	0

	NORTHBOUND							SOUTHBOUND							WESTBOUND							EASTBOUND						
LANE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	1	0	0	0	0	3	0	0	0	0

	NORTHBOUND		SOUTHBOUND		WESTBOUND		EASTBOUND	
	Phasing	RTOR	Phasing	RTOR	Phasing	RTOR	Phasing	RTOR
SIGNAL	<none>	<none>	<none>	<none>	Perm	Auto	Perm	<none>

Critical Movements Diagram

	A	B
SouthBound	0	0
EastBound	373	0
WestBound	507	0
NorthBound	0	0

V/C RATIO	LOS
0.00 - 0.60	A
0.61 - 0.70	B
0.71 - 0.80	C
0.81 - 0.90	D
0.91 - 1.00	E

A = Adjusted Through/Right Volume
B = Adjusted Left Volume
* = ATSAC Benefit

Results

North/South Critical Movements = +

West/East Critical Movements = A(W/B) + B(E/B)

$$V/C = \frac{+ \quad + \quad 507 \quad + \quad 0}{1200} = 0.423$$

LOS = A

PM_TDM

CalcaDB

July 6, 2011 ,Wednesday 12:15:38 PM

INTERSECTION DATA SUMMARY SHEET

N/S: SR-134 WB On-Ramp W/E: Alameda Av I/S No: 164

AM/PM: PM Comments: FUTURE (2030) WITH PROJECT TDM

COUNT DATE: STUDY DATE: GROWTH FACTOR:

Volume/Lane/Signal Configurations

	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	0	0	0	0	0	0	0	1130	438	0	1755	0
AMBIENT												
RELATED												
PROJECT												
TOTAL	0	0	0	0	0	0	0	1130	438	0	1755	0

	NB							SB							WB							EB						
LANE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	1	0	0	0	0	3	0	0	0	0

	NB Phasing	NB RTOR	SB Phasing	SB RTOR	WB Phasing	WB RTOR	EB Phasing	EB RTOR
SIGNAL	<none>	<none>	<none>	<none>	Perm	Auto	Perm	<none>

Critical Movements Diagram

	A	B
SouthBound	0	0
EastBound	585	0
WestBound	523	0
NorthBound	0	0

A = Adjusted Through/Right Volume
B = Adjusted Left Volume
* = ATSAC Benefit

V/C RATIO	LOS
0.00 - 0.60	A
0.61 - 0.70	B
0.71 - 0.80	C
0.81 - 0.90	D
0.91 - 1.00	E

Results

North/South Critical Movements = +

West/East Critical Movements = B(W/B) + A(E/B)

V/C = (+ + 0 + 585) / 1200 = 0.488 LOS = A

Developed by Chun Wong, 12/94

AM_BASEB

CalcaDB

July 6, 2011 ,Wednesday 12:18:25 PM

INTERSECTION DATA SUMMARY SHEET

N/S: Hollywood Way W/E: Alameda Av I/S No: 84

AM/PM: AM Comments: FUT (2030) WO PROJ_BURBANK LONG-TERM IMP

COUNT DATE: STUDY DATE: GROWTH FACTOR:

Volume/Lane/Signal Configurations

	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	67	347	122	293	1407	351	408	1227	493	238	1068	175
AMBIENT												
RELATED												
PROJECT												
TOTAL	67	347	122	293	1407	351	408	1227	493	238	1068	175

	NORTHBOUND							SOUTHBOUND							WESTBOUND							EASTBOUND						
LANE	2	0	2	0	0	1	0	2	0	2	0	0	1	0	1	0	3	0	0	1	0	1	0	2	0	1	0	0

	Phasing	RTOR	Phasing	RTOR	Phasing	RTOR	Phasing	RTOR
SIGNAL	Prot-Fix	Auto	Prot-Fix	Auto	Prot-Fix	OLA	Prot-Fix	Auto

Critical Movements Diagram

SouthBound
A: 704
B: 161

EastBound
A: 414
B: 238

WestBound
A: 409
B: 408

NorthBound
A: 174
B: 37

A = Adjusted Through/Right Volume
B = Adjusted Left Volume
* = ATSAC Benefit

V/C RATIO	LOS
0.00 - 0.60	A
0.61 - 0.70	B
0.71 - 0.80	C
0.81 - 0.90	D
0.91 - 1.00	E

Results

North/South Critical Movements = B(N/B) + A(S/B)

West/East Critical Movements = B(W/B) + A(E/B)

$$V/C = \frac{37 + 704 + 408 + 414}{1375} = 1.137$$

LOS = F

Developed by Chun Wong, 12/94

PM_BASEB

July 6, 2011 ,Wednesday 12:20:25 PM

CalcaDB

INTERSECTION DATA SUMMARY SHEET

N/S: Hollywood Way W/E: Alameda Av I/S No: 84

AM/PM: PM Comments: FUT(2030) W/O PROJ_BURBANK LONG-TERM IMP

COUNT DATE: STUDY DATE: GROWTH FACTOR:

Volume/Lane/Signal Configurations

	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	308	864	445	297	602	323	259	1101	632	235	1079	117
AMBIENT												
RELATED												
PROJECT												
TOTAL	308	864	445	297	602	323	259	1101	632	235	1079	117

	NORTHBOUND							SOUTHBOUND							WESTBOUND							EASTBOUND						
LANE	2	0	2	0	0	1	0	2	0	2	0	0	1	0	1	0	3	0	0	1	0	1	0	2	0	1	0	0

	NORTHBOUND		SOUTHBOUND		WESTBOUND		EASTBOUND	
	Phasing	RTOR	Phasing	RTOR	Phasing	RTOR	Phasing	RTOR
SIGNAL	Prot-Fix	Auto	Prot-Fix	Auto	Prot-Fix	OLA	Prot-Fix	Auto

Critical Movements Diagram

	A	B
SouthBound	301	163
EastBound	399	235
WestBound	469	259
NorthBound	432	169

A = Adjusted Through/Right Volume
B = Adjusted Left Volume
* = ATSAC Benefit

V/C RATIO	LOS
0.00 - 0.60	A
0.61 - 0.70	B
0.71 - 0.80	C
0.81 - 0.90	D
0.91 - 1.00	E

Results

North/South Critical Movements = A(N/B) + B(S/B)

West/East Critical Movements = A(W/B) + B(E/B)

$$V/C = \frac{432 + 163 + 469 + 235}{1375} = 0.945$$

LOS = E

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CalcaDB

INTERSECTION DATA SUMMARY SHEET

N/S: Hollywood Way
W/E: Alameda Av
I/S No: 84
AM/PM: AM
Comments: FUT(2030) W/PROJ TDM FUND MIT_BURBANK LT
COUNT DATE:
STUDY DATE:
GROWTH FACTOR:

Volume/Lane/Signal Configurations

	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	69	360	136	293	1430	352	409	1240	493	238	1075	175
AMBIENT												
RELATED												
PROJECT												
TOTAL	69	360	136	293	1430	352	409	1240	493	238	1075	175

	NORTHBOUND							SOUTHBOUND							WESTBOUND							EASTBOUND						
LANE	2	0	2	0	0	1	0	2	0	2	0	0	1	0	1	0	3	0	0	1	0	1	0	2	0	1	0	0

	NORTHBOUND Phasing	NORTHBOUND RTOR	SOUTHBOUND Phasing	SOUTHBOUND RTOR	WESTBOUND Phasing	WESTBOUND RTOR	EASTBOUND Phasing	EASTBOUND RTOR
SIGNAL	Prot-Fix	Auto	Prot-Fix	Auto	Prot-Fix	OLA	Prot-Fix	Auto

Critical Movements Diagram

	A	B
SouthBound	715	161
EastBound	417	238
WestBound	413	409
NorthBound	180	38

A = Adjusted Through/Right Volume
B = Adjusted Left Volume
* = ATSAC Benefit

V/C RATIO	LOS
0.00 - 0.60	A
0.61 - 0.70	B
0.71 - 0.80	C
0.81 - 0.90	D
0.91 - 1.00	E

Results

North/South Critical Movements = B(N/B) + A(S/B)

West/East Critical Movements = B(W/B) + A(E/B)

$$V/C = \frac{38 + 715 + 409 + 417}{1375} = 1.148$$

LOS = F

Developed by Chun Wong, 12/94

July 6, 2011 ,Wednesday 12:30:06 PM

CalcaDB

INTERSECTION DATA SUMMARY SHEET

N/S: Hollywood Way W/E: Alameda Av I/S No: 84

AM/PM: PM Comments: FUT(2030) W/PROJ TDM FUND MIT_BURBANK LT

COUNT DATE: STUDY DATE: GROWTH FACTOR:

Volume/Lane/Signal Configurations

	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	308	883	447	297	699	323	262	1107	632	235	1095	117
AMBIENT												
RELATED												
PROJECT												
TOTAL	308	883	447	297	699	323	262	1107	632	235	1095	117

LANE							
NORTHBOUND	2	0	2	0	0	1	0
SOUTHBOUND	2	0	2	0	0	1	0
WESTBOUND	1	0	3	0	0	1	0
EASTBOUND	1	0	2	0	1	0	0

SIGNAL	Phasing	RTOR
NORTHBOUND	Prot-Fix	Auto
SOUTHBOUND	Prot-Fix	Auto
WESTBOUND	Prot-Fix	OLA
EASTBOUND	Prot-Fix	Auto

Critical Movements Diagram

	A	B
SouthBound	350	163
EastBound	404	235
WestBound	469	262
NorthBound	442	169

A = Adjusted Through/Right Volume
B = Adjusted Left Volume
* = ATSAC Benefit

V/C RATIO	LOS
0.00 - 0.60	A
0.61 - 0.70	B
0.71 - 0.80	C
0.81 - 0.90	D
0.91 - 1.00	E

Results

North/South Critical Movements = A(N/B) + B(S/B)

West/East Critical Movements = A(W/B) + B(E/B)

$$V/C = \frac{442 + 163 + 469 + 235}{1375} = 0.952$$

LOS = E

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CalcaDB

INTERSECTION DATA SUMMARY SHEET

N/S: Hollywood Way W/E: Alameda Av I/S No: 84

AM/PM: AM Comments: FUT (2030) W PROJ_BURBANK LONG-TERM IMP

COUNT DATE: STUDY DATE: GROWTH FACTOR:

Volume/Lane/Signal Configurations

	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	69	364	140	293	1425	353	409	1247	493	238	1077	175
AMBIENT												
RELATED												
PROJECT												
TOTAL	69	364	140	293	1425	353	409	1247	493	238	1077	175

LANE							
NORTHBOUND	2	0	2	0	0	1	0
SOUTHBOUND	2	0	2	0	0	1	0
WESTBOUND	1	0	3	0	0	1	0
EASTBOUND	1	0	2	0	1	0	0

SIGNAL	Phasing	RTOR
NORTHBOUND	Prot-Fix	Auto
SOUTHBOUND	Prot-Fix	Auto
WESTBOUND	Prot-Fix	OLA
EASTBOUND	Prot-Fix	Auto

Critical Movements Diagram

	A	B
SouthBound	713	161
EastBound	417	238
WestBound	416	409
NorthBound	182	38

A = Adjusted Through/Right Volume
B = Adjusted Left Volume
* = ATSAC Benefit

V/C RATIO	LOS
0.00 - 0.60	A
0.61 - 0.70	B
0.71 - 0.80	C
0.81 - 0.90	D
0.91 - 1.00	E

Results

North/South Critical Movements = B(N/B) + A(S/B)

West/East Critical Movements = B(W/B) + A(E/B)

$$V/C = \frac{38 + 713 + 409 + 417}{1375} = 1.147$$

LOS = F

CalcaDB

INTERSECTION DATA SUMMARY SHEET

N/S: Hollywood Way W/E: Alameda Av I/S No: 84

AM/PM: PM Comments: FUT (2030) W/PROJ_BURBANK LONG-TERM IMP

COUNT DATE: STUDY DATE: GROWTH FACTOR:

Volume/Lane/Signal Configurations

	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	309	889	448	297	629	323	262	1125	632	236	1108	117
AMBIENT												
RELATED												
PROJECT												
TOTAL	309	889	448	297	629	323	262	1125	632	236	1108	117

	NORTHBOUND							SOUTHBOUND							WESTBOUND							EASTBOUND						
LANE	2	0	2	0	0	1	0	2	0	2	0	0	1	0	1	0	3	0	0	1	0	1	0	2	0	1	0	0

	NORTHBOUND Phasing	NORTHBOUND RTOR	SOUTHBOUND Phasing	SOUTHBOUND RTOR	WESTBOUND Phasing	WESTBOUND RTOR	EASTBOUND Phasing	EASTBOUND RTOR
SIGNAL	Prot-Fix	Auto	Prot-Fix	Auto	Prot-Fix	OLA	Prot-Fix	Auto

Critical Movements Diagram

SouthBound
A: 315
B: 163

EastBound
A: 408
B: 236

WestBound
A: 469
B: 262

NorthBound
A: 445
B: 170

A = Adjusted Through/Right Volume
B = Adjusted Left Volume
* = ATSAC Benefit

V/C RATIO	LOS
0.00 - 0.60	A
0.61 - 0.70	B
0.71 - 0.80	C
0.81 - 0.90	D
0.91 - 1.00	E

Results

North/South Critical Movements = A(N/B) + B(S/B)

West/East Critical Movements = A(W/B) + B(E/B)

$$V/C = \frac{445 + 163 + 469 + 236}{1375} = 0.955$$

LOS = E

CalcaDB

INTERSECTION DATA SUMMARY SHEET

N/S: Hollywood Way W/E: Alameda Av I/S No: 84

AM/PM: AM Comments: FUT (2030) W/PROJ TDM_BURBANK LONG-TERM

COUNT DATE: STUDY DATE: GROWTH FACTOR:

Volume/Lane/Signal Configurations

	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	69	360	136	293	1420	352	409	1240	493	238	1075	175
AMBIENT												
RELATED												
PROJECT												
TOTAL	69	360	136	293	1420	352	409	1240	493	238	1075	175

LANE							
NORTHBOUND	2	0	2	0	0	1	0
SOUTHBOUND	2	0	2	0	0	1	0
WESTBOUND	1	0	3	0	0	1	0
EASTBOUND	1	0	2	0	1	0	0

SIGNAL	Phasing	RTOR
NORTHBOUND	Prot-Fix	Auto
SOUTHBOUND	Prot-Fix	Auto
WESTBOUND	Prot-Fix	OLA
EASTBOUND	Prot-Fix	Auto

Critical Movements Diagram

	A	B
SouthBound	710	161
EastBound	417	238
WestBound	413	409
NorthBound	180	38

V/C RATIO	LOS
0.00 - 0.60	A
0.61 - 0.70	B
0.71 - 0.80	C
0.81 - 0.90	D
0.91 - 1.00	E

A = Adjusted Through/Right Volume
B = Adjusted Left Volume
* = ATSAC Benefit

Results

North/South Critical Movements = B(N/B) + A(S/B)

West/East Critical Movements = B(W/B) + A(E/B)

$$V/C = \frac{38 + 710 + 409 + 417}{1375} = 1.145$$

LOS = F

Developed by Chun Wong, 12/94

CalcaDB

July 6, 2011 ,Wednesday 12:26:13 PM

INTERSECTION DATA SUMMARY SHEET

N/S: Hollywood Way W/E: Alameda Av I/S No: 84

AM/PM: PM Comments: FUT (2030) W/PROJ TDM_BURBANK LONG-TERM

COUNT DATE: STUDY DATE: GROWTH FACTOR:

Volume/Lane/Signal Configurations

	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	308	883	447	297	624	323	262	1122	632	235	1095	117
AMBIENT												
RELATED												
PROJECT												
TOTAL	308	883	447	297	624	323	262	1122	632	235	1095	117

	NB							SB							WB							EB						
LANE	2	0	2	0	0	1	0	2	0	2	0	0	1	0	1	0	3	0	0	1	0	1	0	2	0	1	0	0

	NB Phasing	NB RTOR	SB Phasing	SB RTOR	WB Phasing	WB RTOR	EB Phasing	EB RTOR
SIGNAL	Prot-Fix	Auto	Prot-Fix	Auto	Prot-Fix	OLA	Prot-Fix	Auto

Critical Movements Diagram

SouthBound
A: 312
B: 163

EastBound
A: 404
B: 235

WestBound
A: 469
B: 262

NorthBound
A: 442
B: 169

V/C RATIO	LOS
0.00 - 0.60	A
0.61 - 0.70	B
0.71 - 0.80	C
0.81 - 0.90	D
0.91 - 1.00	E

A = Adjusted Through/Right Volume
B = Adjusted Left Volume
* = ATSAC Benefit

Results

North/South Critical Movements = A(N/B) + B(S/B)

West/East Critical Movements = A(W/B) + B(E/B)

$$V/C = \frac{442 + 163 + 469 + 235}{1375} = 0.952$$

LOS = E

AM_BASEB

July 6, 2011 ,Wednesday 12:18:52 PM

CalcaDB

INTERSECTION DATA SUMMARY SHEET

N/S: Cordova St/SR 134 WB Off-Ramp | W/E: Alameda Av | I/S No: 85

AM/PM: AM | Comments: FUT (2030) WO PROJ_BURBANK LONG-TERM IMP

COUNT DATE: | STUDY DATE: | GROWTH FACTOR:

Volume/Lane/Signal Configurations

	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	1064	0	375	0	0	30	0	1069	0	6	1082	427
AMBIENT												
RELATED												
PROJECT												
TOTAL	1064	0	375	0	0	30	0	1069	0	6	1082	427

	NORTHBOUND							SOUTHBOUND							WESTBOUND							EASTBOUND						
LANE	2	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	2	0	0	0	0	1	0	2	0	0	1	0

	NORTHBOUND		SOUTHBOUND		WESTBOUND		EASTBOUND	
	Phasing	RTOR	Phasing	RTOR	Phasing	RTOR	Phasing	RTOR
SIGNAL	Perm	Auto	Perm	OLA	Perm	Auto	Prot-Fix	Auto

Critical Movements Diagram

SouthBound
A: 24
B: 0

EastBound
A: 541
B: 6

WestBound
A: 535
B: 0

NorthBound
A: 375
B: 585

V/C RATIO	LOS
0.00 - 0.60	A
0.61 - 0.70	B
0.71 - 0.80	C
0.81 - 0.90	D
0.91 - 1.00	E

A = Adjusted Through/Right Volume
B = Adjusted Left Volume
* = ATSAC Benefit

Results

North/South Critical Movements = B(N/B) + A(S/B)

West/East Critical Movements = B(W/B) + A(E/B)

$$V/C = \frac{585 + 24 + 0 + 541}{1425} = 0.807$$

LOS = D

Developed by Chun Wong, 12/94

CalcaDB

July 6, 2011 ,Wednesday 12:20:36 PM

INTERSECTION DATA SUMMARY SHEET

N/S:	Cordova St/SR 134 WB Off-Ramp	W/E:	Alameda Av	I/S No:	85
AM/PM:	PM	Comments:	FUT(2030) W/O PROJ_BURBANK LONG-TERM IMP		
COUNT DATE:		STUDY DATE:		GROWTH FACTOR:	

Volume/Lane/Signal Configurations

	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	844	0	89	0	0	54	0	1116	0	6	1037	820
AMBIENT												
RELATED												
PROJECT												
TOTAL	844	0	89	0	0	54	0	1116	0	6	1037	820

LANE							
NORTHBOUND	2	0	0	0	0	1	0
SOUTHBOUND	0	0	0	0	0	1	0
WESTBOUND	0	0	2	0	0	0	0
EASTBOUND	1	0	2	0	0	1	0

SIGNAL	NORTHBOUND		SOUTHBOUND		WESTBOUND		EASTBOUND	
	Phasing	RTOR	Phasing	RTOR	Phasing	RTOR	Phasing	RTOR
	Perm	Auto	Perm	OLA	Perm	Auto	Prot-Fix	Auto

Critical Movements Diagram

	A:	B:
SouthBound	48	0
EastBound	820	6
WestBound	558	0
NorthBound	89	464

A = Adjusted Through/Right Volume
B = Adjusted Left Volume
* = ATSAC Benefit

V/C RATIO	LOS
0.00 - 0.60	A
0.61 - 0.70	B
0.71 - 0.80	C
0.81 - 0.90	D
0.91 - 1.00	E

Results

North/South Critical Movements = B(N/B) + A(S/B)

West/East Critical Movements = B(W/B) + A(E/B)

$$V/C = \frac{464 + 48 + 0 + 820}{1425} = 0.935$$

LOS = E

CalcaDB

INTERSECTION DATA SUMMARY SHEET

N/S: Cordova St/SR 134 WB Off-Ramp
W/E: Alameda Av
I/S No: 85
AM/PM: AM
Comments: FUT(2030) W/PROJ TDM FUND MIT_BURBANK LT
COUNT DATE:
STUDY DATE:
GROWTH FACTOR:

Volume/Lane/Signal Configurations

	NORTHBOUND LT	NORTHBOUND TH	NORTHBOUND RT	SOUTHBOUND LT	SOUTHBOUND TH	SOUTHBOUND RT	WESTBOUND LT	WESTBOUND TH	WESTBOUND RT	EASTBOUND LT	EASTBOUND TH	EASTBOUND RT
EXISTING	1064	0	375	0	0	31	0	1082	0	6	1089	441
AMBIENT												
RELATED												
PROJECT												
TOTAL	1064	0	375	0	0	31	0	1082	0	6	1089	441

LANE

	NB							SB							WB							EB						
LANE	2	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	2	0	0	0	0	1	0	2	0	0	1	0

	NB Phasing	NB RTOR	SB Phasing	SB RTOR	WB Phasing	WB RTOR	EB Phasing	EB RTOR
SIGNAL	Perm	Auto	Perm	OLA	Perm	Auto	Prot-Fix	Auto

Critical Movements Diagram

	A	B
SouthBound	25	0
EastBound	545	6
WestBound	541	0
NorthBound	375	585

A = Adjusted Through/Right Volume
B = Adjusted Left Volume
* = ATSAC Benefit

V/C RATIO	LOS
0.00 - 0.60	A
0.61 - 0.70	B
0.71 - 0.80	C
0.81 - 0.90	D
0.91 - 1.00	E

Results

North/South Critical Movements = B(N/B) + A(S/B)

West/East Critical Movements = A(W/B) + B(E/B)

$$V/C = \frac{585 + 25 + 541 + 6}{1425} = 0.812$$

LOS = D

CalcaDB

INTERSECTION DATA SUMMARY SHEET

N/S: Cordova St/SR 134 WB Off-Ramp   W/E: Alameda Av   I/S No: 85

AM/PM: PM   Comments: FUT(2030) W/PROJ TDM FUND MIT_BURBANK LT

COUNT DATE: STUDY DATE: GROWTH FACTOR:

Volume/Lane/Signal Configurations

	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	859	0	89	0	0	57	0	1107	0	8	1053	821
AMBIENT												
RELATED												
PROJECT												
TOTAL	859	0	89	0	0	57	0	1107	0	8	1053	821

	NB							SB							WB							EB						
LANE	2	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	2	0	0	0	0	1	0	2	0	0	1	0

	NB Phasing	NB RTOR	SB Phasing	SB RTOR	WB Phasing	WB RTOR	EB Phasing	EB RTOR
SIGNAL	Perm	Auto	Perm	OLA	Perm	Auto	Prot-Fix	Auto

Critical Movements Diagram

	A:	B:
SouthBound	49	0
EastBound	821	8
WestBound	554	0
NorthBound	89	472

V/C RATIO	LOS
0.00 - 0.60	A
0.61 - 0.70	B
0.71 - 0.80	C
0.81 - 0.90	D
0.91 - 1.00	E

A = Adjusted Through/Right Volume
B = Adjusted Left Volume
* = ATSAC Benefit

Results

North/South Critical Movements = B(N/B) + A(S/B)

West/East Critical Movements = B(W/B) + A(E/B)

$$V/C = \frac{472 + 49 + 0 + 821}{1425} = 0.942$$

LOS = E

Developed by Chun Wong, 12/94

AM_PROJB

July 6, 2011 ,Wednesday 12:21:43 PM

CalcaDB

INTERSECTION DATA SUMMARY SHEET

N/S: Cordova St/SR 134 WB Off-Ramp W/E: Alameda Av I/S No: 85

AM/PM: AM Comments: FUT (2030) W PROJ_BURBANK LONG-TERM IMP

COUNT DATE: STUDY DATE: GROWTH FACTOR:

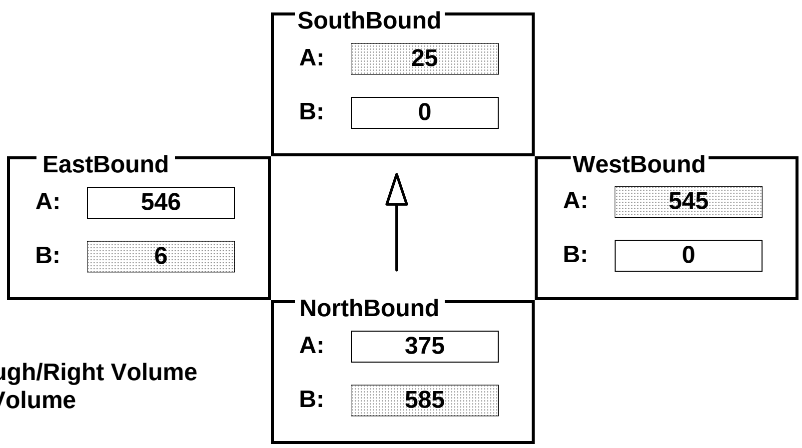
Volume/Lane/Signal Configurations

	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	1064	0	375	0	0	31	0	1089	0	6	1091	445
AMBIENT												
RELATED												
PROJECT												
TOTAL	1064	0	375	0	0	31	0	1089	0	6	1091	445

	NORTHBOUND							SOUTHBOUND							WESTBOUND							EASTBOUND						
LANE	2	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	2	0	0	0	0	1	0	2	0	0	1	0

	NB Phasing	NB RTOR	SB Phasing	SB RTOR	WB Phasing	WB RTOR	EB Phasing	EB RTOR
SIGNAL	Perm	Auto	Perm	OLA	Perm	Auto	Prot-Fix	Auto

Critical Movements Diagram



A = Adjusted Through/Right Volume
B = Adjusted Left Volume
* = ATSAC Benefit

V/C RATIO	LOS
0.00 - 0.60	A
0.61 - 0.70	B
0.71 - 0.80	C
0.81 - 0.90	D
0.91 - 1.00	E

Results

North/South Critical Movements = B(N/B) + A(S/B)

West/East Critical Movements = A(W/B) + B(E/B)

$$V/C = \frac{585 + 25 + 545 + 6}{1425} = 0.815$$

LOS = D

Developed by Chun Wong, 12/94

PM_PROJB

CalcaDB

July 6, 2011 ,Wednesday 12:23:41 PM

INTERSECTION DATA SUMMARY SHEET

N/S:	Cordova St/SR 134 WB Off-Ramp	W/E:	Alameda Av	I/S No:	85
AM/PM:	PM	Comments:	FUT (2030) W/PROJ_BURBANK LONG-TERM IMP		
COUNT DATE:		STUDY DATE:		GROWTH FACTOR:	

Volume/Lane/Signal Configurations

	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	859	0	89	0	0	58	0	1124	0	8	1066	821
AMBIENT												
RELATED												
PROJECT												
TOTAL	859	0	89	0	0	58	0	1124	0	8	1066	821

	NORTHBOUND							SOUTHBOUND							WESTBOUND							EASTBOUND						
LANE	2	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	2	0	0	0	0	1	0	2	0	0	1	0

	NORTHBOUND		SOUTHBOUND		WESTBOUND		EASTBOUND	
	Phasing	RTOR	Phasing	RTOR	Phasing	RTOR	Phasing	RTOR
SIGNAL	Perm	Auto	Perm	OLA	Perm	Auto	Prot-Fix	Auto

Critical Movements Diagram

	A:	B:
SouthBound	50	0
EastBound	821	8
WestBound	562	0
NorthBound	89	472

V/C RATIO	LOS
0.00 - 0.60	A
0.61 - 0.70	B
0.71 - 0.80	C
0.81 - 0.90	D
0.91 - 1.00	E

A = Adjusted Through/Right Volume
B = Adjusted Left Volume
* = ATSAC Benefit

Results

North/South Critical Movements = B(N/B) + A(S/B)

West/East Critical Movements = B(W/B) + A(E/B)

$$V/C = \frac{472 + 50 + 0 + 821}{1425} = 0.942$$

LOS = E

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CalcaDB

INTERSECTION DATA SUMMARY SHEET

N/S: Cordova St/SR 134 WB Off-Ramp W/E: Alameda Av I/S No: 85

AM/PM: AM Comments: FUT (2030) W/PROJ TDM_BURBANK LONG-TERM

COUNT DATE: STUDY DATE: GROWTH FACTOR:

Volume/Lane/Signal Configurations

	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	1064	0	375	0	0	31	0	1082	0	6	1089	441
AMBIENT												
RELATED												
PROJECT												
TOTAL	1064	0	375	0	0	31	0	1082	0	6	1089	441

	NB							SB							WB							EB						
LANE	2	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	2	0	0	0	0	1	0	2	0	0	1	0

	NB Phasing	NB RTOR	SB Phasing	SB RTOR	WB Phasing	WB RTOR	EB Phasing	EB RTOR
SIGNAL	Perm	Auto	Perm	OLA	Perm	Auto	Prot-Fix	Auto

Critical Movements Diagram

	A	B
SouthBound	25	0
EastBound	545	6
WestBound	541	0
NorthBound	375	585

V/C RATIO	LOS
0.00 - 0.60	A
0.61 - 0.70	B
0.71 - 0.80	C
0.81 - 0.90	D
0.91 - 1.00	E

A = Adjusted Through/Right Volume
B = Adjusted Left Volume
* = ATSAC Benefit

Results

North/South Critical Movements = B(N/B) + A(S/B)

West/East Critical Movements = A(W/B) + B(E/B)

$$V/C = \frac{585 + 25 + 541 + 6}{1425} = 0.812$$

LOS = D

CalcaDB

July 6, 2011 ,Wednesday 12:26:30 PM

INTERSECTION DATA SUMMARY SHEET

N/S: Cordova St/SR 134 WB Off-Ramp W/E: Alameda Av I/S No: 85

AM/PM: PM Comments: FUT (2030) W/PROJ TDM_BURBANK LONG-TERM

COUNT DATE: STUDY DATE: GROWTH FACTOR:

Volume/Lane/Signal Configurations

	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	859	0	89	0	0	57	0	1122	0	8	1053	821
AMBIENT												
RELATED												
PROJECT												
TOTAL	859	0	89	0	0	57	0	1122	0	8	1053	821

LANE	NORTHBOUND	SOUTHBOUND	WESTBOUND	EASTBOUND
	2 0 0 0 0 1 0	0 0 0 0 0 1 0	0 0 2 0 0 0 0	1 0 2 0 0 1 0

SIGNAL	NB Phasing	NB RTOR	SB Phasing	SB RTOR	WB Phasing	WB RTOR	EB Phasing	EB RTOR
	Perm	Auto	Perm	OLA	Perm	Auto	Prot-Fix	Auto

Critical Movements Diagram

	A	B
SouthBound	49	0
EastBound	821	8
WestBound	561	0
NorthBound	89	472

A = Adjusted Through/Right Volume
B = Adjusted Left Volume
* = ATSAC Benefit

V/C RATIO	LOS
0.00 - 0.60	A
0.61 - 0.70	B
0.71 - 0.80	C
0.81 - 0.90	D
0.91 - 1.00	E

Results

North/South Critical Movements = B(N/B) + A(S/B)

West/East Critical Movements = B(W/B) + A(E/B)

$$V/C = \frac{472 + 49 + 0 + 821}{1425} = 0.942$$

LOS = E

AM_BASEB

CalcaDB

July 6, 2011 ,Wednesday 12:19:10 PM

INTERSECTION DATA SUMMARY SHEET

N/S: SR-134 WB On-Ramp | W/E: Alameda Av | I/S No: 164

AM/PM: AM | Comments: FUT (2030) WO PROJ_BURBANK LONG-TERM IMP

COUNT DATE: | STUDY DATE: | GROWTH FACTOR:

Volume/Lane/Signal Configurations

	NORTHBOUND LT	NORTHBOUND TH	NORTHBOUND RT	SOUTHBOUND LT	SOUTHBOUND TH	SOUTHBOUND RT	WESTBOUND LT	WESTBOUND TH	WESTBOUND RT	EASTBOUND LT	EASTBOUND TH	EASTBOUND RT
EXISTING	0	0	0	0	0	0	0	1058	446	0	1122	0
AMBIENT												
RELATED												
PROJECT												
TOTAL	0	0	0	0	0	0	0	1058	446	0	1122	0

LANE							
NORTHBOUND	0	0	0	0	0	0	0
SOUTHBOUND	0	0	0	0	0	0	0
WESTBOUND	0	0	2	0	1	0	0
EASTBOUND	0	0	3	0	0	0	0

SIGNAL	Phasing	RTOR
NORTHBOUND	<none>	<none>
SOUTHBOUND	<none>	<none>
WESTBOUND	Perm	Auto
EASTBOUND	Perm	<none>

Critical Movements Diagram

	A	B
SouthBound	0	0
EastBound	374	0
WestBound	501	0
NorthBound	0	0

V/C RATIO	LOS
0.00 - 0.60	A
0.61 - 0.70	B
0.71 - 0.80	C
0.81 - 0.90	D
0.91 - 1.00	E

A = Adjusted Through/Right Volume
B = Adjusted Left Volume
* = ATSAC Benefit

Results

North/South Critical Movements = +

West/East Critical Movements = A(W/B) + B(E/B)

$$V/C = \frac{\ + \ + 501 + 0}{1200} = 0.418$$

LOS = A

Developed by Chun Wong, 12/94

CalcaDB

July 6, 2011 ,Wednesday 12:19:44 PM

INTERSECTION DATA SUMMARY SHEET

N/S: SR-134 WB On-Ramp | W/E: Alameda Av | I/S No: 164

AM/PM: PM | Comments: FUT(2030) W/O PROJ_BURBANK LONG-TERM IMP

COUNT DATE: | STUDY DATE: | GROWTH FACTOR:

Volume/Lane/Signal Configurations

	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	0	0	0	0	0	0	0	1109	438	0	1737	0
AMBIENT												
RELATED												
PROJECT												
TOTAL	0	0	0	0	0	0	0	1109	438	0	1737	0

LANE	NB	SB	WB	EB
	0 0 0 0 0 0 0	0 0 0 0 0 0 0	0 0 2 0 1 0 0	0 0 3 0 0 0 0

SIGNAL	NB Phasing	NB RTOR	SB Phasing	SB RTOR	WB Phasing	WB RTOR	EB Phasing	EB RTOR
	<none>	<none>	<none>	<none>	Perm	Auto	Perm	<none>

Critical Movements Diagram

	A	B
SouthBound	0	0
EastBound	579	0
WestBound	516	0
NorthBound	0	0

A = Adjusted Through/Right Volume
B = Adjusted Left Volume
* = ATSAC Benefit

V/C RATIO	LOS
0.00 - 0.60	A
0.61 - 0.70	B
0.71 - 0.80	C
0.81 - 0.90	D
0.91 - 1.00	E

Results

North/South Critical Movements = +

West/East Critical Movements = B(W/B) + A(E/B)

V/C = (+ + 0 + 579) / 1200 = 0.483

LOS = A

CalcaDB

INTERSECTION DATA SUMMARY SHEET

N/S:	SR-134 WB On-Ramp	W/E:	Alameda Av	I/S No:	164
AM/PM:	AM	Comments:	FUT(2030) W/PROJ TDM FUND MIT_BURBANK LT		
COUNT DATE:		STUDY DATE:		GROWTH FACTOR:	

Volume/Lane/Signal Configurations

	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	0	0	0	0	0	0	0	1072	448	0	1120	0
AMBIENT												
RELATED												
PROJECT												
TOTAL	0	0	0	0	0	0	0	1072	448	0	1120	0

	NORTHBOUND							SOUTHBOUND							WESTBOUND							EASTBOUND						
LANE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	1	0	0	0	0	3	0	0	0	0

	NB Phasing	NB RTOR	SB Phasing	SB RTOR	WB Phasing	WB RTOR	EB Phasing	EB RTOR
SIGNAL	<none>	<none>	<none>	<none>	Perm	Auto	Perm	<none>

Critical Movements Diagram

	A	B
SouthBound	0	0
EastBound	373	0
WestBound	507	0
NorthBound	0	0

A = Adjusted Through/Right Volume
B = Adjusted Left Volume
* = ATSAC Benefit

V/C RATIO	LOS
0.00 - 0.60	A
0.61 - 0.70	B
0.71 - 0.80	C
0.81 - 0.90	D
0.91 - 1.00	E

Results

North/South Critical Movements = +

West/East Critical Movements = A(W/B) + B(E/B)

$$V/C = \frac{\quad + \quad + 507 + 0}{1200} = 0.423$$

LOS = A

PM_MIT_B

CalcaDB

July 6, 2011 ,Wednesday 12:29:35 PM

INTERSECTION DATA SUMMARY SHEET

N/S: SR-134 WB On-Ramp W/E: Alameda Av I/S No: 164

AM/PM: PM Comments: FUT(2030) W/PROJ TDM FUND MIT_BURBANK LT

COUNT DATE: STUDY DATE: GROWTH FACTOR:

Volume/Lane/Signal Configurations

	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	0	0	0	0	0	0	0	1115	438	0	1755	0
AMBIENT												
RELATED												
PROJECT												
TOTAL	0	0	0	0	0	0	0	1115	438	0	1755	0

	NORTHBOUND							SOUTHBOUND							WESTBOUND							EASTBOUND						
LANE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	1	0	0	0	0	3	0	0	0	0

	NORTHBOUND Phasing	NORTHBOUND RTOR	SOUTHBOUND Phasing	SOUTHBOUND RTOR	WESTBOUND Phasing	WESTBOUND RTOR	EASTBOUND Phasing	EASTBOUND RTOR
SIGNAL	<none>	<none>	<none>	<none>	Perm	Auto	Perm	<none>

Critical Movements Diagram

	A	B
SouthBound	0	0
EastBound	585	0
WestBound	518	0
NorthBound	0	0

A = Adjusted Through/Right Volume
B = Adjusted Left Volume
* = ATSAC Benefit

V/C RATIO	LOS
0.00 - 0.60	A
0.61 - 0.70	B
0.71 - 0.80	C
0.81 - 0.90	D
0.91 - 1.00	E

Results

North/South Critical Movements = +

West/East Critical Movements = B(W/B) + A(E/B)

V/C = (+ + 0 + 585) / 1200 = 0.488

LOS = A

Developed by Chun Wong, 12/94

CalcaDB

July 6, 2011 ,Wednesday 12:21:57 PM

INTERSECTION DATA SUMMARY SHEET

N/S:	SR-134 WB On-Ramp	W/E:	Alameda Av	I/S No:	164
AM/PM:	AM	Comments:	FUT (2030) W PROJ_BURBANK LONG-TERM IMP		
COUNT DATE:		STUDY DATE:		GROWTH FACTOR:	

Volume/Lane/Signal Configurations

	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	0	0	0	0	0	0	0	1080	448	0	1122	0
AMBIENT												
RELATED												
PROJECT												
TOTAL	0	0	0	0	0	0	0	1080	448	0	1122	0

	NORTHBOUND							SOUTHBOUND							WESTBOUND							EASTBOUND						
LANE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	1	0	0	0	0	3	0	0	0	0

	NORTHBOUND		SOUTHBOUND		WESTBOUND		EASTBOUND	
	Phasing	RTOR	Phasing	RTOR	Phasing	RTOR	Phasing	RTOR
SIGNAL	<none>	<none>	<none>	<none>	Perm	Auto	Perm	<none>

Critical Movements Diagram

	A	B
SouthBound	0	0
EastBound	374	0
WestBound	509	0
NorthBound	0	0

V/C RATIO	LOS
0.00 - 0.60	A
0.61 - 0.70	B
0.71 - 0.80	C
0.81 - 0.90	D
0.91 - 1.00	E

A = Adjusted Through/Right Volume
B = Adjusted Left Volume
* = ATSAC Benefit

Results

North/South Critical Movements = +

West/East Critical Movements = A(W/B) + B(E/B)

$$V/C = \frac{+ \quad + \quad 509 \quad + \quad 0}{1200} = 0.424$$

LOS = A

Developed by Chun Wong, 12/94

PM_PROJB

CalcaDB

July 6, 2011 ,Wednesday 12:22:39 PM

INTERSECTION DATA SUMMARY SHEET

N/S: SR-134 WB On-Ramp   W/E: Alameda Av   I/S No: 164

AM/PM: PM   Comments: FUT (2030) W/PROJ_BURBANK LONG-TERM IMP

COUNT DATE: STUDY DATE: GROWTH FACTOR:

Volume/Lane/Signal Configurations

	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	0	0	0	0	0	0	0	1133	439	0	1768	0
AMBIENT												
RELATED												
PROJECT												
TOTAL	0	0	0	0	0	0	0	1133	439	0	1768	0

	NORTHBOUND							SOUTHBOUND							WESTBOUND							EASTBOUND						
LANE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	1	0	0	0	0	3	0	0	0	0

	NORTHBOUND Phasing	NORTHBOUND RTOR	SOUTHBOUND Phasing	SOUTHBOUND RTOR	WESTBOUND Phasing	WESTBOUND RTOR	EASTBOUND Phasing	EASTBOUND RTOR
SIGNAL	<none>	<none>	<none>	<none>	Perm	Auto	Perm	<none>

Critical Movements Diagram

SouthBound
A: 0
B: 0

EastBound
A: 589
B: 0

WestBound
A: 524
B: 0

NorthBound
A: 0
B: 0

V/C RATIO	LOS
0.00 - 0.60	A
0.61 - 0.70	B
0.71 - 0.80	C
0.81 - 0.90	D
0.91 - 1.00	E

A = Adjusted Through/Right Volume
B = Adjusted Left Volume
* = ATSAC Benefit

Results

North/South Critical Movements = +

West/East Critical Movements = B(W/B) + A(E/B)

$$V/C = \frac{+ \quad + \quad 0 \quad + \quad 589}{1200} = 0.491$$

LOS = A

Developed by Chun Wong, 12/94

CalcaDB

INTERSECTION DATA SUMMARY SHEET

N/S: SR-134 WB On-Ramp W/E: Alameda Av I/S No: 164

AM/PM: AM Comments: FUT (2030) W/PROJ TDM_BURBANK LONG-TERM

COUNT DATE: STUDY DATE: GROWTH FACTOR:

Volume/Lane/Signal Configurations

	NORTHBOUND			SOUTHBOUND			WESTBOUND			EASTBOUND		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
EXISTING	0	0	0	0	0	0	0	1072	448	0	1120	0
AMBIENT												
RELATED												
PROJECT												
TOTAL	0	0	0	0	0	0	0	1072	448	0	1120	0

LANE							
NORTHBOUND	0	0	0	0	0	0	0
SOUTHBOUND	0	0	0	0	0	0	0
WESTBOUND	0	0	2	0	1	0	0
EASTBOUND	0	0	3	0	0	0	0

SIGNAL	Phasing	RTOR
NORTHBOUND	<none>	<none>
SOUTHBOUND	<none>	<none>
WESTBOUND	Perm	Auto
EASTBOUND	Perm	<none>

Critical Movements Diagram

	A:	B:
SouthBound	0	0
EastBound	373	0
WestBound	507	0
NorthBound	0	0

V/C RATIO	LOS
0.00 - 0.60	A
0.61 - 0.70	B
0.71 - 0.80	C
0.81 - 0.90	D
0.91 - 1.00	E

A = Adjusted Through/Right Volume
B = Adjusted Left Volume
* = ATSAC Benefit

Results

North/South Critical Movements = +

West/East Critical Movements = A(W/B) + B(E/B)

$$V/C = \frac{+ \quad + \quad 507 \quad + \quad 0}{1200} = 0.423$$

LOS = A

PM_TDMB

CalcaDB

July 6, 2011 ,Wednesday 12:25:41 PM

INTERSECTION DATA SUMMARY SHEET

N/S: SR-134 WB On-Ramp
W/E: Alameda Av
I/S No: 164

AM/PM: PM
Comments: FUT (2030) W/PROJ TDM_BURBANK LONG-TERM

COUNT DATE:
STUDY DATE:
GROWTH FACTOR:

Volume/Lane/Signal Configurations

	NORTHBOUND LT	NORTHBOUND TH	NORTHBOUND RT	SOUTHBOUND LT	SOUTHBOUND TH	SOUTHBOUND RT	WESTBOUND LT	WESTBOUND TH	WESTBOUND RT	EASTBOUND LT	EASTBOUND TH	EASTBOUND RT
EXISTING	0	0	0	0	0	0	0	1130	438	0	1755	0
AMBIENT												
RELATED												
PROJECT												
TOTAL	0	0	0	0	0	0	0	1130	438	0	1755	0

LANE							
NORTHBOUND	0	0	0	0	0	0	0
SOUTHBOUND	0	0	0	0	0	0	0
WESTBOUND	0	0	2	0	1	0	0
EASTBOUND	0	0	3	0	0	0	0

SIGNAL	Phasing	RTOR
NORTHBOUND	<none>	<none>
SOUTHBOUND	<none>	<none>
WESTBOUND	Perm	Auto
EASTBOUND	Perm	<none>

Critical Movements Diagram

	A	B
SouthBound	0	0
EastBound	585	0
WestBound	523	0
NorthBound	0	0

A = Adjusted Through/Right Volume
B = Adjusted Left Volume
* = ATSAC Benefit

V/C RATIO	LOS
0.00 - 0.60	A
0.61 - 0.70	B
0.71 - 0.80	C
0.81 - 0.90	D
0.91 - 1.00	E

Results

North/South Critical Movements = +

West/East Critical Movements = B(W/B) + A(E/B)

V/C = (+ + 0 + 585) / 1200 = 0.488

LOS = A

Developed by Chun Wong, 12/94

Appendix FEIR-4

Bicycle Traffic Counts for the NBC Universal Evolution Plan

MEMORANDUM

TO: Mark Lyum
NBC Universal

FROM: Patrick A. Gibson, P.E., PTOE
Geetika Maheshwari, P.E., LEED AP

DATE: August 18, 2011

RE: Bicycle Traffic Counts
for the NBCUniversal Evolution Plan **Ref: J1005**

Gibson Transportation Consulting, Inc. conducted bicycle traffic counts along the Barham Boulevard and Cahuenga Boulevard (West) corridors on June 28, 2011 from 6:00 a.m. to 8:00 p.m. The results of these counts are provided in Attachment A.

Barham Boulevard

Bicycle traffic counts on Barham Boulevard were conducted at its intersection with Lakeside Plaza Drive/Forest Lawn Drive. As shown in Attachment A, a total of seven and 12 bicyclists travel along Barham Boulevard south of Lakeside Plaza Drive/Forest Lawn Drive during the morning (8:15 a.m. to 9:15 a.m.) and afternoon (5:00 p.m. to 6:00 p.m.) peak hours, respectively. Similarly, the peak hourly bicycle counts during the morning and afternoon commute periods are nine and 12, respectively.

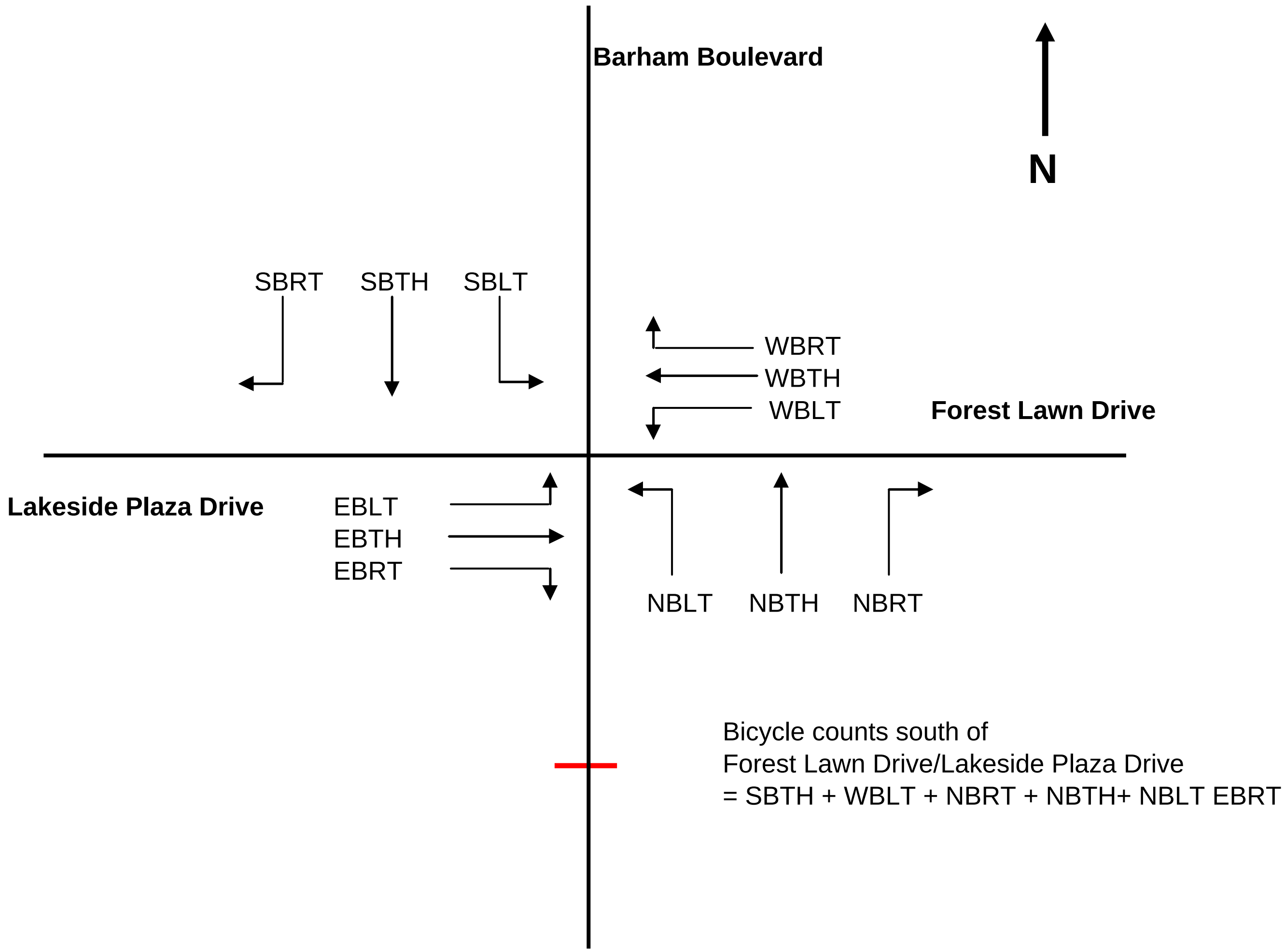
Cahuenga Boulevard (West)

Bicycle traffic counts on Cahuenga Boulevard (West) were conducted at its intersection with Barham Boulevard. As shown in Attachment A, a total of four and three bicyclists travel along Cahuenga Boulevard (West) west of Barham Boulevard during the morning (8:15 a.m. to 9:15 a.m.) and afternoon (5:00 p.m. to 6:00 p.m.) peak hours, respectively. A total of three and four bicyclists travel along Cahuenga Boulevard (West) east of Barham Boulevard during the morning (8:15 a.m. to 9:15 a.m.) and afternoon (5:00 p.m. to 6:00 p.m.) peak hours, respectively.

The peak hourly bicycle counts along Cahuenga Boulevard (West) west of Barham Boulevard during the morning and afternoon commute periods are eight and eight, respectively. Similarly, the peak hourly bicycle counts along Cahuenga Boulevard (West) east of Barham Boulevard during the morning and afternoon commute periods are eight and six, respectively.

ATTACHMENT A

BICYCLE TRAFFIC COUNTS



Barham Boulevard
N
SBRT
SBTH
SBLT
WBRT
WBTH
WBLT
Forest Lawn Drive
Lakeside Plaza Drive
EBLT
EBTH
EBRT
NBLT
NBTH
NBRT
Bicycle counts south of
Forest Lawn Drive/Lakeside Plaza Drive
= SBTH + WBLT + NBRT + NBTH+ NBLT EBRT

WILTEC TEL: (626) 564-1944 FAX: (626) 564-0969 E-mail: info@wiltecusa.com

14-HOUR INTERSECTION BICYCLE TURNING MOVEMENT COUNT SUMMARY

CLIENT: GIBSON TRANSPORTATION CONSULTING, INC.
PROJECT: BARHAM BOULEVARD BICYCLE COUNTS
DATE: TUESDAY, JUNE 28, 2011
PERIOD: 6:00 A.M. TO 8:00 P.M.
INTERSECTION: N/S BARHAM BOULEVARD
E/W FOREST LAWN DRIVE

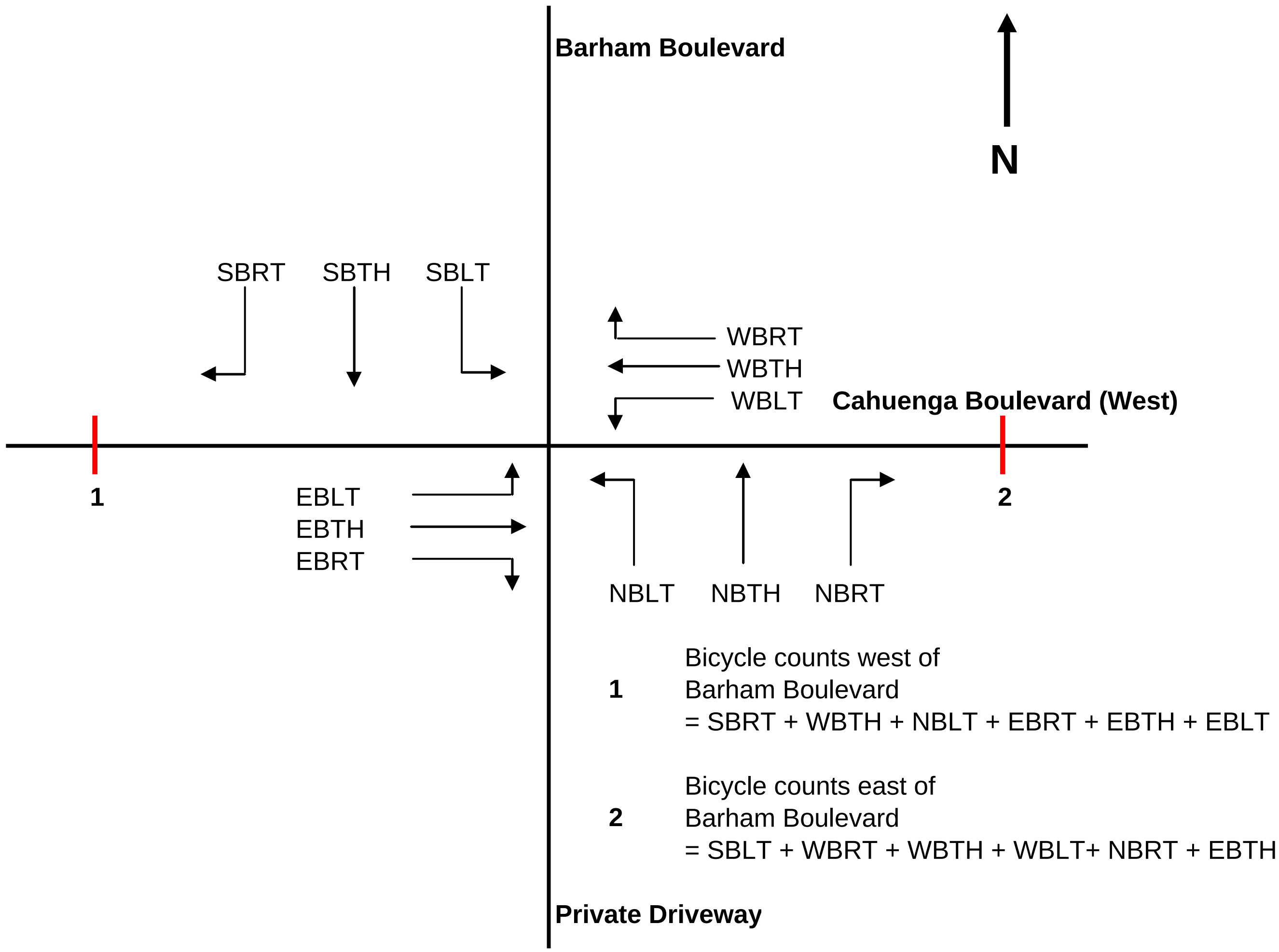
15 MIN TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
600-615	0	0	0	0	0	0	0	0	0	0	0	0	0
615-630	0	1	0	0	0	0	0	0	0	0	2	0	3
630-645	0	0	2	0	0	0	1	0	0	0	0	0	3
645-700	0	0	3	0	1	0	0	0	0	0	0	0	4
700-715	0	0	2	0	1	0	0	1	1	0	0	0	5
715-730	0	0	0	2	1	1	1	1	0	0	0	0	6
730-745	0	0	1	3	0	0	0	0	0	0	0	0	4
745-800	0	0	0	4	2	0	0	2	0	0	0	0	8
800-815	1	0	1	1	1	0	1	0	0	0	0	0	5
815-830	0	0	0	2	0	1	0	0	0	0	0	0	3
830-845	1	0	1	2	0	0	3	0	0	0	0	0	7
845-900	1	2	2	2	0	0	0	1	0	0	0	0	8
900-915	0	0	4	0	0	0	0	0	0	0	0	0	4
915-930	1	2	17	2	0	0	0	1	0	0	0	0	23
930-945	0	0	0	2	1	0	0	0	0	0	0	0	3
945-1000	0	1	2	1	0	0	0	1	0	0	0	0	5
1000-1015	0	0	1	2	0	0	0	0	0	0	0	0	3
1015-1030	0	1	0	0	0	0	0	0	0	0	1	0	2
1030-1045	0	0	0	2	0	1	0	0	0	0	0	0	3
1045-1100	0	2	0	0	1	0	0	1	0	0	0	0	4
1100-1115	0	0	1	2	1	0	0	0	0	0	2	0	6
1115-1130	1	0	0	1	0	0	1	1	0	0	2	1	7
1130-1145	0	1	0	1	0	0	0	1	0	0	0	0	3
1145-1200	0	0	0	2	0	0	1	0	0	0	1	0	4
1200-1215	0	0	0	1	1	0	0	1	0	0	0	0	3
1215-1230	0	0	0	1	1	0	0	0	0	0	1	0	3
1230-1245	0	1	1	1	0	0	0	0	0	0	0	1	4
1245-100	0	1	0	0	0	0	0	1	0	0	0	1	3
100-115	0	1	0	1	1	0	0	1	0	0	0	0	4
115-130	0	0	2	0	0	0	0	1	0	0	0	0	3
130-145	0	0	0	1	0	0	0	0	0	0	0	0	1
145-200	0	1	0	1	0	0	0	1	0	0	0	0	3
200-215	0	1	0	1	0	0	0	0	0	0	0	0	2
215-230	0	0	0	0	0	0	0	0	0	0	0	0	0
230-245	0	1	0	0	0	1	0	0	0	0	0	0	2
245-300	0	1	2	0	0	0	0	0	0	0	0	0	3
300-315	0	1	0	3	0	0	0	2	0	0	2	0	8
315-330	0	1	0	0	0	0	0	0	0	0	1	0	2
330-345	1	1	0	0	0	1	1	0	0	0	0	0	4
345-400	0	0	1	0	0	0	0	0	0	0	0	0	1
400-415	0	2	2	2	0	0	1	1	0	0	2	0	10
415-430	0	1	0	1	0	0	0	0	0	0	1	0	3
430-445	0	0	1	5	0	0	0	0	0	0	1	0	7
445-500	0	1	1	0	0	0	0	0	0	0	0	0	2
500-515	0	0	1	1	0	0	1	0	0	0	0	0	3
515-530	0	0	0	3	0	0	0	0	0	0	1	0	4
530-545	0	2	1	1	1	0	2	0	0	1	0	0	8
545-600	0	6	0	1	0	0	0	0	0	0	1	0	8
600-615	0	1	0	0	0	0	1	0	0	0	2	0	4
615-630	0	1	3	1	0	0	0	0	0	0	0	1	6
630-645	1	1	2	0	0	0	0	1	0	0	1	0	6
645-700	1	0	1	1	0	0	0	0	0	0	1	0	4
700-715	0	0	1	1	0	0	0	0	0	0	0	0	2
715-730	0	2	2	0	0	0	0	0	0	0	0	1	5
730-745	0	0	0	1	0	0	0	0	0	0	0	0	1
745-800	0	0	0	1	0	1	0	0	0	0	0	0	2
SUM	8	37	58	60	13	6	14	19	1	1	22	5	244

WILTEC TEL: (626) 564-1944 FAX: (626) 564-0969 E-mail: info@wiltecusa.com

14-HOUR INTERSECTION BICYCLE TURNING MOVEMENT COUNT SUMMARY

CLIENT: GIBSON TRANSPORTATION CONSULTING, INC.
PROJECT: BARHAM BOULEVARD BICYCLE COUNTS
DATE: TUESDAY, JUNE 28, 2011
PERIOD: 6:00 A.M. TO 8:00 P.M.
INTERSECTION: N/S BARHAM BOULEVARD
E/W FOREST LAWN DRIVE

HOUR TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
600-700	0	1	5	0	1	0	1	0	0	0	2	0	**10**
615-715	0	1	7	0	2	0	1	1	1	0	2	0	**15**
630-730	0	0	7	2	3	1	2	2	1	0	0	0	**18**
645-745	0	0	6	5	3	1	1	2	1	0	0	0	**19**
700-800	0	0	3	9	4	1	1	4	1	0	0	0	**23**
715-815	1	0	2	10	4	1	2	3	0	0	0	0	**23**
730-830	1	0	2	10	3	1	1	2	0	0	0	0	**20**
745-845	2	0	2	9	3	1	4	2	0	0	0	0	**23**
800-900	3	2	4	7	1	1	4	1	0	0	0	0	**23**
815-915	2	2	7	6	0	1	3	1	0	0	0	0	**22**
830-930	3	4	24	6	0	0	3	2	0	0	0	0	**42**
845-945	2	4	23	6	1	0	0	2	0	0	0	0	**38**
900-1000	1	3	23	5	1	0	0	2	0	0	0	0	**35**
915-1015	1	3	20	7	1	0	0	2	0	0	0	0	**34**
930-1030	0	2	3	5	1	0	0	1	0	0	1	0	**13**
945-1045	0	2	3	5	0	1	0	1	0	0	1	0	**13**
1000-1100	0	3	1	4	1	1	0	1	0	0	1	0	**12**
1015-1115	0	3	1	4	2	1	0	1	0	0	3	0	**15**
1030-1130	1	2	1	5	2	1	1	2	0	0	4	1	**20**
1045-1145	1	3	1	4	2	0	1	3	0	0	4	1	**20**
1100-1200	1	1	1	6	1	0	2	2	0	0	5	1	**20**
1115-1215	1	1	0	5	1	0	2	3	0	0	3	1	**17**
1130-1230	0	1	0	5	2	0	1	2	0	0	2	0	**13**
1145-1245	0	1	1	5	2	0	1	1	0	0	2	1	**14**
1200-100	0	2	1	3	2	0	0	2	0	0	1	2	**13**
1215-115	0	3	1	3	2	0	0	2	0	0	1	2	**14**
1230-130	0	3	3	2	1	0	0	3	0	0	0	2	**14**
1245-145	0	2	2	2	1	0	0	3	0	0	0	1	**11**
100-200	0	2	2	3	1	0	0	3	0	0	0	0	**11**
115-215	0	2	2	3	0	0	0	2	0	0	0	0	**9**
130-230	0	2	0	3	0	0	0	1	0	0	0	0	**6**
145-245	0	3	0	2	0	1	0	1	0	0	0	0	**7**
200-300	0	3	2	1	0	1	0	0	0	0	0	0	**7**
215-315	0	3	2	3	0	1	0	2	0	0	2	0	**13**
230-330	0	4	2	3	0	1	0	2	0	0	3	0	**15**
245-345	1	4	2	3	0	1	1	2	0	0	3	0	**17**
300-400	1	3	1	3	0	1	1	2	0	0	3	0	**15**
315-415	1	4	3	2	0	1	2	1	0	0	3	0	**17**
330-430	1	4	3	3	0	1	2	1	0	0	3	0	**18**
345-445	0	3	4	8	0	0	1	1	0	0	4	0	**21**
400-500	0	4	4	8	0	0	1	1	0	0	4	0	**22**
415-515	0	2	3	7	0	0	1	0	0	0	2	0	**15**
430-530	0	1	3	9	0	0	1	0	0	0	2	0	**16**
445-545	0	3	3	5	1	0	3	0	0	1	1	0	**17**
500-600	0	8	2	6	1	0	3	0	0	1	2	0	**23**
515-615	0	9	1	5	1	0	3	0	0	1	4	0	**24**
530-630	0	10	4	3	1	0	3	0	0	1	3	1	**26**
545-645	1	9	5	2	0	0	1	1	0	0	4	1	**24**
600-700	2	3	6	2	0	0	1	1	0	0	4	1	**20**
615-715	2	2	7	3	0	0	0	1	0	0	2	1	**18**
630-730	2	3	6	2	0	0	0	1	0	0	2	1	**17**
645-745	1	2	4	3	0	0	0	0	0	0	1	1	**12**
700-800	0	2	3	3	0	1	0	0	0	0	0	1	**10**


Barham Boulevard
N
SBRT
SBTH
SBLT
WBRT
WBTH
WBLT
Cahuenga Boulevard (West)
1
2
EBLT
EBTH
EBRT
NBLT
NBTH
NBRT
1
Bicycle counts west of Barham Boulevard
= SBRT + WBTH + NBLT + EBRT + EBTH + EBLT
2
Bicycle counts east of Barham Boulevard
= SBLT + WBRT + WBTH + WBLT+ NBRT + EBTH
Private Driveway

WILTEC TEL: (626) 564-1944 FAX: (626) 564-0969 E-mail: info@wiltecusa.com

14-HOUR INTERSECTION BICYCLE TURNING MOVEMENT COUNT SUMMARY

CLIENT: GIBSON TRANSPORTATION CONSULTING, INC.
PROJECT: BARHAM BOULEVARD BICYCLE COUNTS
DATE: TUESDAY, JUNE 28, 2011
PERIOD: 6:00 A.M. TO 8:00 P.M.
INTERSECTION: N/S BARHAM BOULEVARD/ALLEY
E/W CAHUENGA BOULEVARD

15 MIN TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
600-615	0	0	0	0	0	0	0	0	0	0	2	0	2
615-630	0	0	1	0	0	0	0	0	0	0	0	1	2
630-645	0	0	0	0	0	0	0	0	0	0	0	0	0
645-700	0	0	0	0	0	0	0	0	0	0	2	0	2
700-715	0	0	0	0	0	0	0	0	0	0	0	0	0
715-730	0	0	0	0	0	0	0	0	0	0	0	0	0
730-745	1	0	0	0	0	0	0	0	0	0	0	1	2
745-800	0	0	0	0	0	0	0	0	0	0	2	0	2
800-815	0	0	0	0	0	0	0	0	0	0	1	0	1
815-830	1	0	0	0	1	0	0	1	0	0	1	0	4
830-845	0	0	0	0	0	0	0	0	0	0	0	0	0
845-900	0	0	0	0	0	0	0	0	0	0	0	0	0
900-915	0	0	0	0	0	0	0	0	0	0	1	0	1
915-930	0	0	0	0	1	0	0	0	0	0	1	0	2
930-945	0	1	0	0	0	0	0	0	0	0	3	0	4
945-1000	0	0	0	0	0	0	0	0	0	0	2	0	2
1000-1015	0	0	0	0	0	0	0	0	0	0	0	0	0
1015-1030	0	0	0	0	0	0	0	0	0	0	0	0	0
1030-1045	1	0	1	0	0	0	0	0	0	0	0	0	2
1045-1100	0	0	0	0	0	0	0	0	0	0	0	1	1
1100-1115	0	0	0	0	0	0	0	0	0	0	0	0	0
1115-1130	0	0	0	0	0	0	0	0	0	0	0	0	0
1130-1145	0	0	0	0	0	0	0	0	0	0	0	0	0
1145-1200	0	0	0	0	0	0	0	1	0	0	1	0	2
1200-1215	0	0	0	0	0	0	0	0	0	0	0	0	0
1215-1230	0	0	1	0	0	0	0	1	0	0	2	0	4
1230-1245	0	0	0	0	0	0	0	1	0	0	0	0	1
1245-100	0	0	0	0	0	0	0	0	0	0	0	0	0
100-115	0	0	0	0	0	0	0	0	0	1	0	0	1
115-130	1	0	1	0	0	0	0	0	0	0	1	0	3
130-145	0	0	0	0	0	0	0	0	0	0	0	0	0
145-200	0	0	0	0	0	0	0	0	0	0	0	0	0
200-215	0	0	1	0	0	0	0	0	0	0	0	1	2
215-230	0	0	0	0	0	0	0	0	0	0	0	0	0
230-245	0	0	0	0	0	0	0	0	0	0	1	0	1
245-300	0	0	0	0	0	0	0	0	0	0	0	0	0
300-315	0	0	0	0	0	0	0	0	0	0	0	0	0
315-330	0	0	0	0	1	0	0	0	0	0	1	0	2
330-345	1	0	0	0	0	0	0	0	0	0	1	0	2
345-400	0	0	0	0	0	0	0	0	0	0	0	0	0
400-415	0	0	0	0	0	0	0	0	0	0	1	1	2
415-430	0	0	0	0	0	0	0	0	0	0	4	0	4
430-445	0	0	0	0	0	0	0	0	0	0	0	0	0
445-500	0	0	0	0	0	0	0	0	0	0	0	0	0
500-515	0	0	0	0	0	0	0	1	0	0	1	0	2
515-530	0	0	0	0	1	0	0	0	0	0	0	0	1
530-545	0	0	0	1	0	0	0	0	0	0	0	0	1
545-600	0	0	0	0	0	0	0	0	0	0	1	0	1
600-615	1	0	2	0	0	0	0	0	0	0	0	0	3
615-630	0	0	0	0	0	0	0	0	0	0	2	1	3
630-645	2	0	0	0	0	0	0	0	0	0	0	0	2
645-700	3	0	0	0	1	0	0	1	0	0	1	0	6
700-715	1	0	0	0	0	0	0	0	0	0	2	0	3
715-730	0	0	0	1	0	0	0	0	0	0	1	0	2
730-745	0	0	0	0	0	0	0	0	0	0	1	0	1
745-800	0	0	0	0	0	0	0	0	0	0	0	0	0
SUM	12	1	7	2	5	0	0	6	0	1	36	6	76

WILTEC

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14-HOUR INTERSECTION BICYCLE TURNING MOVEMENT COUNT SUMMARY

CLIENT: GIBSON TRANSPORTATION CONSULTING, INC.
PROJECT: BARHAM BOULEVARD BICYCLE COUNTS
DATE: TUESDAY, JUNE 28, 2011
PERIOD: 6:00 A.M. TO 8:00 P.M.
INTERSECTION: N/S BARHAM BOULEVARD/ALLEY
E/W CAHUENGA BOULEVARD

HOUR TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
600-700	0	0	1	0	0	0	0	0	0	0	4	1	**6**
615-715	0	0	1	0	0	0	0	0	0	0	2	1	**4**
630-730	0	0	0	0	0	0	0	0	0	0	2	0	**2**
645-745	1	0	0	0	0	0	0	0	0	0	2	1	**4**
700-800	1	0	0	0	0	0	0	0	0	0	2	1	**4**
715-815	1	0	0	0	0	0	0	0	0	0	3	1	**5**
730-830	2	0	0	0	1	0	0	1	0	0	4	1	**9**
745-845	1	0	0	0	1	0	0	1	0	0	4	0	**7**
800-900	1	0	0	0	1	0	0	1	0	0	2	0	**5**
815-915	1	0	0	0	1	0	0	1	0	0	2	0	**5**
830-930	0	0	0	0	1	0	0	0	0	0	2	0	**3**
845-945	0	1	0	0	1	0	0	0	0	0	5	0	**7**
900-1000	0	1	0	0	1	0	0	0	0	0	7	0	**9**
915-1015	0	1	0	0	1	0	0	0	0	0	6	0	**8**
930-1030	0	1	0	0	0	0	0	0	0	0	5	0	**6**
945-1045	1	0	1	0	0	0	0	0	0	0	2	0	**4**
1000-1100	1	0	1	0	0	0	0	0	0	0	0	1	**3**
1015-1115	1	0	1	0	0	0	0	0	0	0	0	1	**3**
1030-1130	1	0	1	0	0	0	0	0	0	0	0	1	**3**
1045-1145	0	0	0	0	0	0	0	0	0	0	0	1	**1**
1100-1200	0	0	0	0	0	0	0	1	0	0	1	0	**2**
1115-1215	0	0	0	0	0	0	0	1	0	0	1	0	**2**
1130-1230	0	0	1	0	0	0	0	2	0	0	3	0	**6**
1145-1245	0	0	1	0	0	0	0	3	0	0	3	0	**7**
1200-100	0	0	1	0	0	0	0	2	0	0	2	0	**5**
1215-115	0	0	1	0	0	0	0	2	0	1	2	0	**6**
1230-130	1	0	1	0	0	0	0	1	0	1	1	0	**5**
1245-145	1	0	1	0	0	0	0	0	0	1	1	0	**4**
100-200	1	0	1	0	0	0	0	0	0	1	1	0	**4**
115-215	1	0	2	0	0	0	0	0	0	0	1	1	**5**
130-230	0	0	1	0	0	0	0	0	0	0	0	1	**2**
145-245	0	0	1	0	0	0	0	0	0	0	1	1	**3**
200-300	0	0	1	0	0	0	0	0	0	0	1	1	**3**
215-315	0	0	0	0	0	0	0	0	0	0	1	0	**1**
230-330	0	0	0	0	1	0	0	0	0	0	2	0	**3**
245-345	1	0	0	0	1	0	0	0	0	0	2	0	**4**
300-400	1	0	0	0	1	0	0	0	0	0	2	0	**4**
315-415	1	0	0	0	1	0	0	0	0	0	3	1	**6**
330-430	1	0	0	0	0	0	0	0	0	0	6	1	**8**
345-445	0	0	0	0	0	0	0	0	0	0	5	1	**6**
400-500	0	0	0	0	0	0	0	0	0	0	5	1	**6**
415-515	0	0	0	0	0	0	0	1	0	0	5	0	**6**
430-530	0	0	0	0	1	0	0	1	0	0	1	0	**3**
445-545	0	0	0	1	1	0	0	1	0	0	1	0	**4**
500-600	0	0	0	1	1	0	0	1	0	0	2	0	**5**
515-615	1	0	2	1	1	0	0	0	0	0	1	0	**6**
530-630	1	0	2	1	0	0	0	0	0	0	3	1	**8**
545-645	3	0	2	0	0	0	0	0	0	0	3	1	**9**
600-700	6	0	2	0	1	0	0	1	0	0	3	1	**14**
615-715	6	0	0	0	1	0	0	1	0	0	5	1	**14**
630-730	6	0	0	1	1	0	0	1	0	0	4	0	**13**
645-745	4	0	0	1	1	0	0	1	0	0	5	0	**12**
700-800	1	0	0	1	0	0	0	0	0	0	4	0	**6**

Appendix FEIR-5

County of Los Angeles Noise Study

COUNTY OF LOS ANGELES
Public Health

JONATHAN E. FIELDING, M.D., M.P.H.
Director and Health Officer

JONATHAN E. FREEDMAN
Chief Deputy Director

ANGELO J. BELLOMO, REHS
Director of Environmental Health

Bureau of Toxicology & Environmental Assessment
CYRUS RANGAN, M.D., F.A.A.P., A.C.M.T., Director
695 South Vermont Avenue, South Tower-14th Floor
Los Angeles, California 90005
TEL (213) 738-3220 • FAX (213) 252-4503

www.publichealth.lacounty.gov

January 26, 2011

NOTICE OF VIOLATION

NBC Universal Studios
E. Mark Lyum, Senior Vice President
West Coast Real Estate/Facilities
100 Universal City Plaza
Universal City, CA 91608

SUBJECT: VIOLATION OF THE LOS ANGELES COUNTY CODE, TITLE 12, ENVIRONMENTAL PROTECTION NOISE CONTROL ORDINANCE. INTRUSIVE NOISE SOURCE LOCATED AT UNIVERSAL STUDIOS, HALLOWEEN HORROR NIGHTS EVENT.

You are hereby advised that the subject event exceeded the exterior noise standards as found in section 12.08.390 of the Los Angeles County Code, Title 12, Noise Control Ordinance. Please refer to the attached report for specific description of the violation.

Due to the public health significance you are hereby directed to comply with the Los Angeles County Noise Ordinance Title 12 at once. It is advised that you consult with an acoustical engineer or consultant on the remediation of the intrusive noise.

If you have any further questions, please contact Cole Landowski, Head of the Environmental Hygiene Program, at (626) 430-5440.

Sincerely,

Cyrus Rangan MD FAAP ACMT

Cyrus Rangan, M.D., F.A.A.P., A.C.M.T.
Director of Bureau of Toxicology & Environmental Assessment

CR:rr
12837

Attachments

cc: Ben Saltsman
Maxanne Hatch
Angelo Bellomo

2010 UNIVERSAL STUDIOS HALLOWEEN HORROR NIGHTS NOISE IMPACT STUDY

INTRODUCTION

A sound impact study was conducted in order to assess sound levels emitted by Universal Studios at 100 Universal City Plaza, Universal City, California 91608. The purpose of the study was to investigate the noise impact by Universal Studios Halloween Horror Nights on residential properties located in the 3400 block of Blair Drive, Los Angeles, California 90068 and determine compliance with the County of Los Angeles Noise Ordinance.

Ambient noise levels were measured by the County of Los Angeles Environmental Health Staff during the period of Thursday, September 23 through Friday, September 24, 2010 and again on Saturday, November 13 through Sunday, November 14, 2010 as dictated by the Noise Ordinance.

Alleged intrusive noise was monitored on September 25-26, 2010 and during the period of October 21-24, 2010, by Environmental Health Staff. .

COUNTY OF LOS ANGELES NOISE ORDINANCE

The applicable Los Angeles County exterior noise standard is found in Section 12.08.390 of the Los Angeles County Code, Title 12, Environmental Protection, Noise Control Ordinance. Allowable noise levels are expressed in terms of a median level not to be exceeded on more than 50% of all the readings within any hour. Some other noise levels are allowed away from the median; therefore the larger the deviation, the shorter the allowable period of elevated noise, up to a + 20 dBA maximum level.

Applicable standards depend upon the noise sensitivity of the receiving land use. If the sound transmitter and the receiver have different zoning, the appropriate noise standard is the arithmetic mean of the transmitting and receiving land use, except for industrial zoning, where the receiving standard becomes the standard. The allowable Los Angeles County noise standards for residential zones from **7 a.m. to 10 p.m.** are:

Noise Standard	Time Duration in Minutes	Decibel Level (dBA)
L50	**Not to be exceeded for more than 30 minutes**	**50**
L25	**Not to be exceeded for more than 15 minutes**	**55**
L8.3	**Not to be exceeded for more than 5 minutes**	**60**
L1.7	**Not to be exceeded for more than 1 minute**	**65**
L max	**Never to be exceeded**	**70**

2010 UNIVERSAL STUDIOS HALLOWEEN HORROR NIGHTS NOISE IMPACT STUDY

The Allowable Los Angeles County noise standards for residential zones from **10 p.m. to 7 a.m.** are:

Noise Standard	Time Duration in Minutes	Decibel Level (dBA)
L50	**Not to be exceeded for more than 30 minutes**	**45**
L25	**Not to be exceeded for more than 15 minutes**	**50**
L8.3	**Not to be exceeded for more than 5 minutes**	**55**
L1.7	**Not to be exceeded for more than 1 minute**	**60**
Lmax	**Never to be exceeded**	**65**

If noises are impulsive, such as gunfire and explosions, then the noise standards are reduced by 5 dBA. **If ambient noise levels exceed these thresholds the standard is adjusted upward to match the ambient noise level.**

Intrusive noise is defined as "alleged offensive noise which intrudes over and above the existing ambient noise at the receptor property (Section 12.08.210).

Impulsive noise is defined as a sound of short duration, usually less than one second and of high intensity, with an abrupt onset and rapid decay (Section 12.08.190).

Unless otherwise herein provided, no person shall operate or cause to be operated any source of sound at any location within the unincorporated county, or allow the creation of any noise on property owned, leased, occupied or otherwise controlled by such person which causes the noise level, when measured on any other property either incorporated or unincorporated to exceed any of the exterior noise standards.

SITE DESCRIPTION

Universal Studios is located in the East San Fernando Valley near the Cahuenga Pass, at 100 Universal City Plaza, bounded by the Los Angeles River Flood Control Channel to the north, Blair Drive to the east, the Hollywood Freeway (US-101) to the south and Lankershim Boulevard to the west. The theme park is located at an elevation of approximately 750 feet above sea level. There are a few structures that act as noise barriers between the source and the sites of the complaints along Blair Drive. Blair Drive residential structures are located above the studio lots. In addition other environmental conditions may have a significant impact on sound transmission originating from the park.

2010 UNIVERSAL STUDIOS HALLOWEEN HORROR NIGHTS NOISE IMPACT STUDY

NOISE LEVEL MEASUREMENTS

Section 12.08.420, subsection B states that the location selected for measuring exterior noise levels shall be at any point on the receptor property, and at least four feet above the ground and ten feet from the nearest reflective surface.

The exterior noise was measured during the Halloween Horror Nights event on September 25 and 26, 2010 and again on October 21-24, 2010. The measurement sites were located at 3401 Blair Drive and 3488 Blair Drive, Los Angeles, CA 90068. Measurements were made using the B & K 2260 and Larson Davis 824 noise meters. The meters were calibrated before and after the measurements were taken. All measurements were made utilizing the A-weighted, slow response (dBA) scale.

FINDINGS:

- The applicable exterior noise standard (Lmax) was exceeded by noise sources not associated with the Halloween Horror Nights event. Such noise sources were noted as:
    - Overflying aircraft (planes and helicopters)
    - Vehicle traffic near the receptor sites
    - Various unidentified amplified sounds
    - Sirens from emergency vehicles
    - Car Alarms
- The applicable exterior noise standards (L1.7, L8.3, L25 and L50) were exceeded by intrusive noise generated by the Universal Studios Halloween Horror Nights Event on October 23-24, 2010 at 3488 Blair Drive, Los Angeles.
- Noise attenuating objects such as buildings, trees, fences were minimal between the nearest source of alleged intrusive noise and the receptor properties.
- No adverse weather conditions such as high wind speed, rain or extreme overcast were present during the sound monitoring for both ambient and operation noise.
- Universal Studios made efforts to attenuate noise by:
    - Installing sound baffles or enclosures for speakers generating sound effects (see photos 1 & 2).
    - Erecting "bus type shelters" to attenuate noise caused by use of chain saws (see photos 3, 4, 5 and 6).
    - Placement of speakers under cars and debris to direct noise back upon the Universal Studios lot (see photos 7 & 8).

- **FINDINGS (continued):**
    - Erection of sound curtains on entire buildings to attenuate noise levels that reflect off the surface of the building (see photos 9 & 10).
    - Reduction of the number of chain saws used in crowd control efforts.
    - Reduction of frequency and intensity of the pyrotechnic "flare cubes"
    - Elimination of a "sheet maze" nearest to receptor properties

CONCLUSION:

Universal Studios and its' Halloween Horror Nights Event has been found to be in violation of the Los Angeles County Noise ordinance as to the night of October 23, 2010 and into the early morning hours of October 24, 2010 (see Table HHN2 – pages 2 and 3).

UNIVERSAL STUDIOS
HALLOWEEN HORROR NIGHTS
INTRUSIVE NOISE
3401 BLAIR DRIVE, LOS ANGELES 90068

SEPTEMBER 25-26, 2010 B & K 2260 - S/N -2391309

START	END	Lmax Standard	Lmax Measured	L1.7 Standard	L1.7 Measured	L 8.3 Standard	L8.3 Measured	L25 Standard	L25 Measured	L50 Standard	L50 Measured
8:22 PM	9:00 PM	70	76.8	65	62.5	60	59.5	55	57.8**	54.1	56.5**
9:00 PM	10:00 PM	73.8	73.1	65	60.2	60	57.8	55	56.3**	53.4	55.3**
10:00 PM	11:00 PM	71.9	68.0	60	59.3	55	57.1**	54	55.6**	53.2	54.2**
11:00 PM	12:00 AM	65	61.1	60	56.8	55.8	55.4	53.9	54.1**	52.7	52.9**

OCTOBER 21-22, 2010 B & K 2260 - S/N -2391309

START	END	Lmax Standard	Lmax Measured	L1.7 Standard	L1.7 Measured	L 8.3 Standard	L8.3 Measured	L25 Standard	L25 Measured	L50 Standard	L50 Measured
8:27 PM	9:00 PM	70	69.2	65	62.5	60	58.4	55.1	56.5**	54.1	55.5**
9:00 PM	10:00 PM	73.8	69.0	65	60.2	60	57.6	55	56.1**	53.4	55.0**
10:00 PM	11:00 PM	71.9	64.8	60	59.8	55	57.2**	54	55.8**	53.2	54.6**
11:00 PM	12:00 AM	65	66.7**	60	59.9	55.8	57.2**	53.9	55.3**	52.7	54.1**
12:00 AM	1:00 AM	67.3	67.3	60	57.6	55.7	55.3	53.7	52.8	51.9	51.0

If the ambient L value exceeds the foregoing level, then the ambient L value becomes the exterior noise level for that standard.

** < 5dBA Difference (Inconclusive)

* 5-10 dBA Difference Between Intrusive Noise and Ambient (Corrected)

UNIVERSAL STUDIOS
HALLOWEEN HORROR NIGHTS
INTRUSIVE NOISE
3401 BLAIR DRIVE, LOS ANGELES 90068

TABLE HHN1 - Page 2 of 2

OCTOBER 23-24, 2010 Larson Davis 824 #A3434

START	END	Lmax Standard	Lmax Measured	L1.7 Standard	L1.7 Measured	L 8.3 Standard	L8.3 Measured	L25 Standard	L25 Measured	L50 Standard	L50 Measured
8:00 PM	9:00 PM	70	80.8	65	66.6**	60	58.8	55.1	56.7**	54.1	55.5**
9:00 PM	10:00 PM	73.8	65.7	65	60.2	60	58.5	55	57.2**	53.4	56.2**
10:00 PM	11:00 PM	71.9	66.3	60	60.7**	55	58.9**	54	57.9**	53.2	57.0**
11:00 PM	12:00 AM	65	69.4	60	61.0**	55.8	59.0**	53.9	57.5**	52.7	56.2**
12:00 AM	1:00 AM	67.3	66.1	60	59.9	55.7	56.9**	53.7	54.5	51.9	52.0**

If the ambient L value exceeds the foregoing level, then the ambient L value becomes the exterior noise level for that standard.

** < 5dBA Difference (Inconclusive)

* 5-10 dBA Difference Between Intrusive Noise and Ambient (Corrected)

UNIVERSAL STUDIOS
HALLOWEEN HORROR NIGHTS
INTRUSIVE NOISE
3488 BLAIR DRIVE, LOS ANGELES 90068

TABLE HHN2 - Page 1 of 3

SEPTEMBER 25-26, 2010 B & K 2260 - S/N -2391308

START	END	Lmax Standard	Lmax Measured	L1.7 Standard	L1.7 Measured	L 8.3 Standard	L8.3 Measured	L25 Standard	L25 Measured	L50 Standard	L50 Measured
8:00 PM	9:00 PM	70	76.7	65	59.6	60	57.2	55	55.7**	50.3	54.7**
9:00 PM	10:00 PM	70	83.6	65	59.2	60	56.8	55	55.6**	50	54.7**
10:00 PM	11:00 PM	70.9	62.2	60	58.2	55	55.8**	50.1	54.4**	49.2	53.3**
11:00 PM	12:00 AM	65	66.3	60	55.9	55	53.9	50	52.8**	48.5	52.0**
12:00 AM	12:27 AM	65.5	71.3	60	56.9	55	53.4	50.2	51.8**	48.3	50.7**

OCTOBER 21-22, 2010 B & K 2260 - S/N -2391308

START	END	Lmax Standard	Lmax Measured	L1.7 Standard	L1.7 Measured	L 8.3 Standard	L8.3 Measured	L25 Standard	L25 Measured	L50 Standard	L50 Measured
8:00 PM	9:00 PM	70	74.6	65	65.5	60	57.6	55	55.2**	50.3	54.0**
9:00 PM	10:00 PM	70	78.0	65	58.3	60	56.0	55	54.6**	50	53.6**
10:00 PM	11:00 PM	70.9	63.3	60	57.6	55	55.3**	50.1	54.0**	49.2	52.9**
11:00 PM	12:00 AM	65	63.3	60	57.4	55	54.8	50	53.4**	48.5	52.5**
12:00 AM	1:00 AM	65.5	60.7	60	54.7	55	52.6	50.2	51.0**	48.3	48.7**

If the ambient L value exceeds the foregoing level, then the ambient L value becomes the exterior noise level for that standard.

** < 5dBA Difference (Inconclusive)

* 5-10 dBA Difference Between Intrusive Noise and Ambient (Corrected)

UNIVERSAL STUDIOS
HALLOWEEN HORROR NIGHTS
INTRUSIVE NOISE

TABLE HHN2 - Page 2 of 3 **3488 BLAIR DRIVE, LOS ANGELES 90068**

OCTOBER 23-24, 2010 B & K 2260 - S/N 2391309

START	END	Lmax Standard	Lmax Measured	L1.7 Standard	L1.7 Measured	L 8.3 Standard	L8.3 Measured	L25 Standard	L25 Measured	L50 Standard	L50 Measured
8:00 PM	9:00 PM	70	74.1	65	67.0**	60	58.1	55	56.3**	50.3	54.3* (+4 dBA)
9:00 PM	10:00 PM	70	73.3	65	59.8	60	58.1	55	55.8* (+.8 dBA)	50	54.8 (+4.8 dBA)
10:00 PM	11:00 PM	70.9	69.0	60	60.6**	55	57.5* (+2.5 dBA)	50.1	56.1* (+6 dBA)	49.2	55.2* (+6 dBA)
11:00 PM	12:00 AM	65	73.9	60	60.2**	55	57* (+2 dBA)	50	55.7* (+5.7 dBA)	48.5	54.7* (+6.2 dBA)
12:00 AM	12:35 AM	65.5	66.0	60	59.1**	55.7	56.3**	50.2	54.3**	48.3	52.7**

If the ambient L value exceeds the foregoing level, then the ambient L value becomes the exterior noise level for that standard.

** < 5dBA Difference (Inconclusive)

* 5-10 dBA Difference Between Intrusive Noise and Ambient (Corrected)

UNIVERSAL STUDIOS
HALLOWEEN HORROR NIGHTS
INTRUSIVE NOISE
3488 BLAIR DRIVE, LOS ANGELES 90068

OCTOBER 23-24, 2010 Larson Davis 824 - S/N A3435

START	END	Lmax Standard	Lmax Measured	L1.7 Standard	L1.7 Measured	L 8.3 Standard	L8.3 Measured	L25 Standard	L25 Measured	L50 Standard	L50 Measured
8:00 PM	9:00 PM	70	74.1	65	65.9* (+ .9 dBA)	60	58.3	55	56.2**	50.3	55.2**
9:00 PM	10:00 PM	70	73.2	65	59.9	60	57.9	55	55.7* (+.7 dBA)	50	54.6 (+4.6 dBA)
10:00 PM	11:00 PM	70.9	72.1	60	60.7**	55	57.5* (+2.5 dBA)	50.1	56.0* (+5.9 dBA)	49.2	55.1* (+5.9 dBA)
11:00 PM	12:00 AM	65	74.0	60	60.1**	55	56.9 (+1.9 dBA)	50	55.6* (+5.6 dBA)	48.5	54.6* (+6.1 dBA)
12:00 AM	12:35 AM	65.5	75.3	60	59.9*	55	56.7**	50.2	54.3**	48.3	52.4**

If the ambient L value exceeds the foregoing level, then the ambient L value becomes the exterior noise level for that standard.

** < 5dBA Difference (Inconclusive)

* 5-10 dBA Difference Between Intrusive Noise and Ambient (Corrected)

UNIVERSAL STUDIOS
HALLOWEEN HORROR NIGHTS
AMBIENT DATA
3401 Blair Drive, Los Angeles, CA 90068

TABLE HHN 3 - Page 1 of 2

DATE	EVENT	INSTRUMENT	START TIME	END TIME	Laeq	Lmax (slow)	Lmin	L1.7	L8.3	L25	L50	L90
						dBA	dBA	dBA	dBA	dBA	dBA	dBA
Thursday	Ambient	B&K 2260	8:00 PM	9:00 PM	54.0	68.6	NA	61.8	55.4	53.4	52.4	50.8
9/23/2010		#2391309	9:00 PM	10:00 PM	53.8	73.8	NA	59.3	53.4	52.1	51.2	50.1
		Slow Mode	10:00 PM	11:00 PM	52.4	71.9	NA	57.9	52.3	51.4	50.6	49.2
			11:00 PM	12:00 AM	50.8	64.4	NA	58.1	53.6	50.5	49.0	46.8
		OVERALL	**7:43:36 PM**	**12:00:05 AM**	**52.9**	**73.8**	**45.2**	**59.3**	**54.0**	**52.3**	**51.1**	**48.6**

DATE	EVENT	INSTRUMENT	START TIME	END TIME	Laeq	Lmax (slow)	Lmin	L1.7	L8.3	L25	L50	L90
						dBA	dBA	dBA	dBA	dBA	dBA	dBA
Saturday	Ambient	Larson Davis	4:32 PM	5:00 PM	60.1	78.3	NA	70.8	59.0	57.0	55.9	54.1
10/23/2010		#824A3434	5:00 PM	6:00 PM	56.0	73.6	NA	66.0	56.7	54.7	53.2	50.7
		Slow Mode	6:00 PM	7:00 PM	53.8	74.3	NA	61.8	54.8	52.0	50.8	48.7
			7:00 PM	8:00 PM	56.2	73.9	NA	63.1	57.6	55.8	54.4	51.5
10/24/2010			1:00 AM	2:00 AM	53.4	69.1	NA	58.8	55.4	53.7	52.2	49.7
		OVERALL	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

UNIVERSAL STUDIOS
HALLOWEEN HORROR NIGHTS
AMBIENT DATA
3401 Blair Drive, Los Angeles, CA 90068

TABLE HHN 3 - Page 2 of 2

DATE	EVENT	INSTRUMENT	START TIME	END TIME	Laeq	Lmax (slow)	Lmin	L1.7	L8.3	L25	L50	L90
						dBA	dBA	dBA	dBA	dBA	dBA	dBA
Saturday	Ambient	Larson Davis 824	5:07 PM	6:00 PM	53.5	67.5	NA	59.8	55.8	53.7	52.5	50.4
11/13/2010		#824A3434	6:00 PM	7:00 PM	53.3	60.9	NA	57.9	55.0	53.7	52.8	51.3
			7:00 PM	8:00 PM	56.3	67.6	NA	59.5	58.4	57.3	56.1	52.9
			8:00 PM	9:00 PM	56.2	66.9	NA	59.3	57.7	56.7	55.8	54.4
			9:00 PM	10:00 PM	55.9	65.9	NA	59.1	57.4	56.5	55.6	54.0
			10:00 PM	11:00 PM	56.0	65.8	NA	59.0	57.7	56.6	55.7	53.8
			11:00 PM	12:00 AM	56.6	66.3	NA	59.3	58.0	57.2	56.3	54.6
11/14/2010			12:00 AM	1:00 AM	55.7	61.8	NA	58.9	57.7	56.5	55.4	53.4
		OVERALL	**17:07:02 PM**	**1:01:02 AM**	**55.6**	**67.6**	**48.8**	**59.0**	**57.6**	**56.4**	**55.3**	**52.2**

UNIVERSAL STUDIOS
HALLOWEEN HORROR NIGHTS
AMBIENT DATA - AVERAGES
3401 Blair Drive, Los Angeles, CA 90068

TABLE HHN 4 - Page 1 of 1

	HOUR	Leq (dBA)	Lmax Slow (dBA)	Lmax Fast (dBA)	L1.7 (dBA)	L8.3 (dBA)	L25 (dBA)	L50 (dBA)	L90 (dBA)
DAYTIME	8:00	55.1	68.6	75.0	60.6	56.6	55.1	54.1	52.6
	9:00	54.9	73.8	75.6	59.2	55.7	54.3	53.4	52.1
NIGHTTIME	10:00	54.2	71.9	73.3	58.5	55.0	54.0	53.2	51.5
	11:00	53.7	64.4	66.3	58.7	55.8	53.9	52.7	50.7
	12:00	53.2	67.3	69.9	58.5	55.7	53.7	51.9	50.1

UNIVERSAL STUDIOS
HALLOWEEN HORROR NIGHTS
AMBIENT DATA - AVERAGES
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TABLE HHN 4 - Page 1 of 1

	HOUR	Leq (dBA)	Lmax Slow (dBA)	Lmax Fast (dBA)	L1.7 (dBA)	L8.3 (dBA)	L25 (dBA)	L50 (dBA)	L90 (dBA)
DAYTIME	8:00	55.1	68.6	75.0	60.6	56.6	55.1	54.1	52.6
	9:00	54.9	73.8	75.6	59.2	55.7	54.3	53.4	52.1
NIGHTTIME	10:00	54.2	71.9	73.3	58.5	55.0	54.0	53.2	51.5
	11:00	53.7	64.4	66.3	58.7	55.8	53.9	52.7	50.7
	12:00	53.2	67.3	69.9	58.5	55.7	53.7	51.9	50.1

UNIVERSAL STUDIOS
HALLOWEEN HORROR NIGHTS
AMBIENT DATA
3488 Blair Drive, Los Angeles, CA 90068

TABLE HHN 5 - Page 1 of 2

DATE	EVENT	INSTRUMENT	START TIME	END TIME	Laeq	Lmax (slow)	Lmin	L1.7	L8.3	L25	L50	L90
					dBA	dBA	dBA	dBA	dBA	dBA	dBA	dBA
Thursday	Ambient	B&K 2260	8:00 PM	9:00 PM	52.9	66.8	NA	61.3	55.1	52.0	50.9	48.7
9/23/2010		#2391308	9:00 PM	10:00 PM	52.3	69.8	NA	61.0	53.2	51.3	50.0	48.3
		Slow Mode	10:00 PM	11:00 PM	51.8	70.9	NA	58.8	51.8	50.2	49.5	48.3
			11:00 PM	12:00 AM	49.1	64.5	NA	57.6	50.6	48.2	47.4	46.0
		OVERALL	**7:43:36 PM**	**12:00:05 AM**	**51.8**	**70.9**	**44.9**	**59.5**	**53.3**	**51.1**	**49.7**	**47.1**

DATE	EVENT	INSTRUMENT	START TIME	END TIME	Laeq	Lmax (slow)	Lmin	L1.7	L8.3	L25	L50	L90
					dBA	dBA	dBA	dBA	dBA	dBA	dBA	dBA
Saturday	Ambient	Larson Davis	4:40 PM	5:00 PM	61.2	78.7	NA	72.2	63.1	55.0	53.5	51.5
10/23/2010		#824A3435	5:00 PM	6:00 PM	55.1	77.7	NA	64.0	56.2	52.9	51.2	48.1
		Slow Mode	6:00 PM	7:00 PM	54.3	77.8	NA	62.0	54.5	49.8	48.6	46.8
			7:00 PM	8:00 PM	55.0	71.2	NA	61.9	56.7	54.8	53.6	51.9
		OVERALL	**4:39:37 PM**	**12:41:07 AM**	**56.5**	**78.8**	**45.2**	**62.7**	**57.6**	**55.9**	**54.5**	**48.7**
10/24/2010			12:45 AM	1:45 AM	48.2	62.9	NA	52.3	49.8	48.6	47.7	46.1
		OVERALL	**12:45:38 AM**	**1:57:11 AM**	**49.6**	**70.4**	**44.4**	**56.5**	**50.7**	**48.9**	**48.0**	**46.3**

UNIVERSAL STUDIOS
HALLOWEEN HORROR NIGHTS
AMBIENT DATA
3488 Blair Drive, Los Angeles, CA 90068

TABLE HHN 5 - Page 2 of 2

DATE	EVENT	INSTRUMENT	START TIME	END TIME	Laeq	Lmax (slow)	Lmin	L1.7	L8.3	L25	L50	L90
					dBA	dBA	dBA	dBA	dBA	dBA	dBA	dBA
Saturday	Ambient	Larson Davis 824	8:19 PM	9:00 PM	50.9	66.6	NA	58.3	52.3	50.7	49.7	48.2
11/13/2010		#824A3435	9:00 PM	10:00 PM	49.9	61.8	NA	54.7	51.7	50.4	49.3	47.6
		Slow Mode	10:00 PM	11:00 PM	49.3	59.8	NA	52.7	50.9	50.0	48.9	47.0
			11:00 PM	12:00 AM	50.2	63.3	NA	52.9	51.7	50.7	49.6	47.8
11/14/2010			12:00 AM	1:00 AM	50.2	65.5	NA	54.9	51.8	50.6	49.6	48.0
		OVERALL	**8:19:23 PM**	**1:11:22 AM**	**50.0**	**66.6**	**45.5**	**54.6**	**51.4**	**50.3**	**49.3**	**47.7**

UNIVERSAL STUDIOS
HALLOWEEN HORROR NIGHTS
AMBIENT DATA - AVERAGES
3488 Blair Drive, Los Angeles, CA 90068

TABLE HHN 6 - Page 1 of 1

	HOUR	Leq (dBA)	Lmax Slow (dBA)	Lmax Fast (dBA)	L1.7 (dBA)	L8.3 (dBA)	L25 (dBA)	L50 (dBA)	L90 (dBA)
DAYTIME	8:00	51.9	66.8	69.5	59.8	53.7	51.4	50.3	48.5
	9:00	51.1	69.8	72.4	57.9	52.5	50.9	49.7	48.0
NIGHTTIME	10:00	50.6	70.9	72.8	55.8	51.4	50.1	49.2	47.7
	11:00	49.7	64.5	72.6	55.3	51.2	49.5	48.5	46.9
	12:00	49.7	65.5	67.5	54.9	51.9	50.2	48.3	46.0


PHOTO 1


PHOTO 2


PHOTO 3


PHOTO 4


PHOTO 5


PHOTO 6

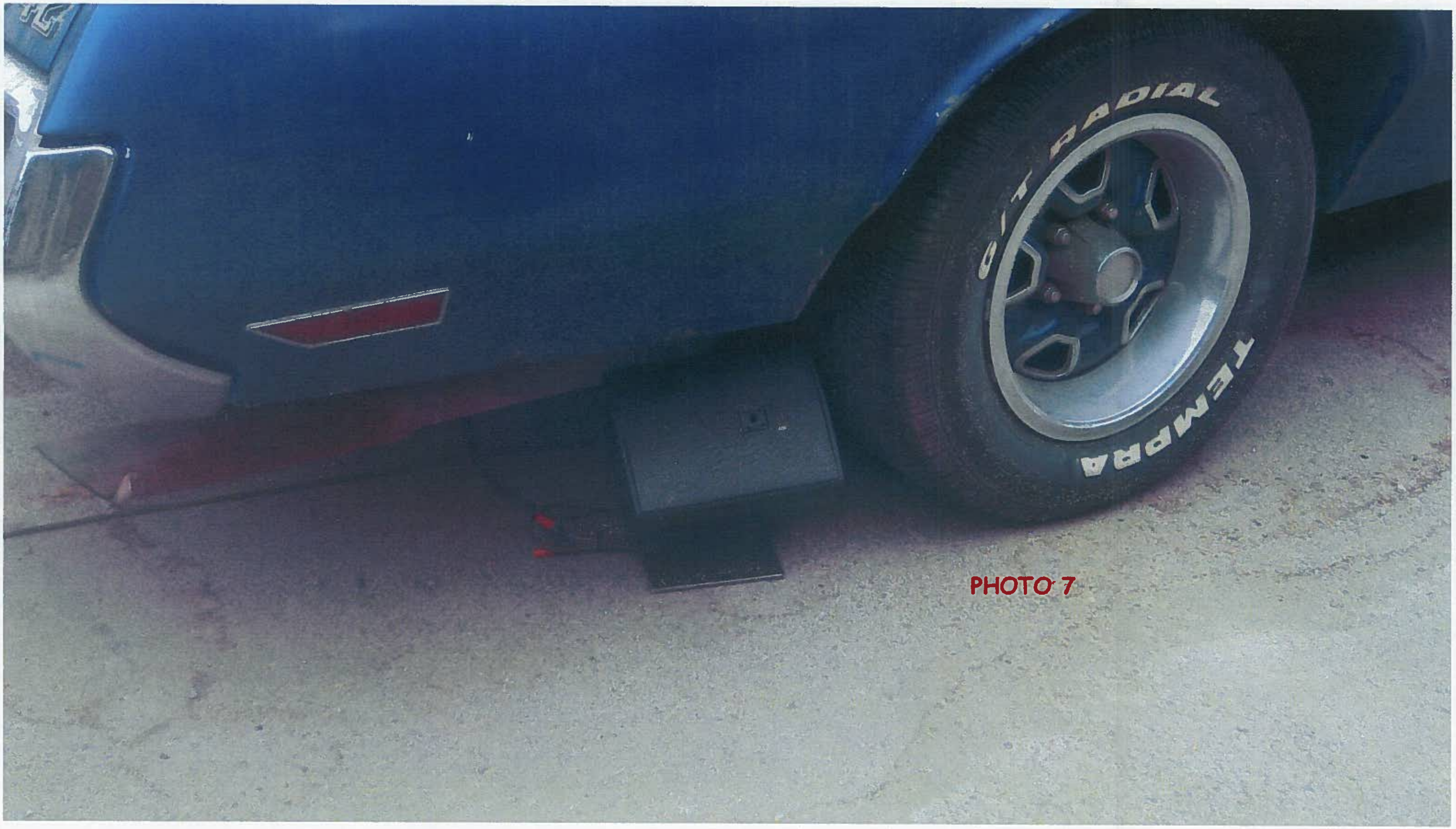

G/T RADIAL
TEMPRA
PHOTO 7


PHOTO 8

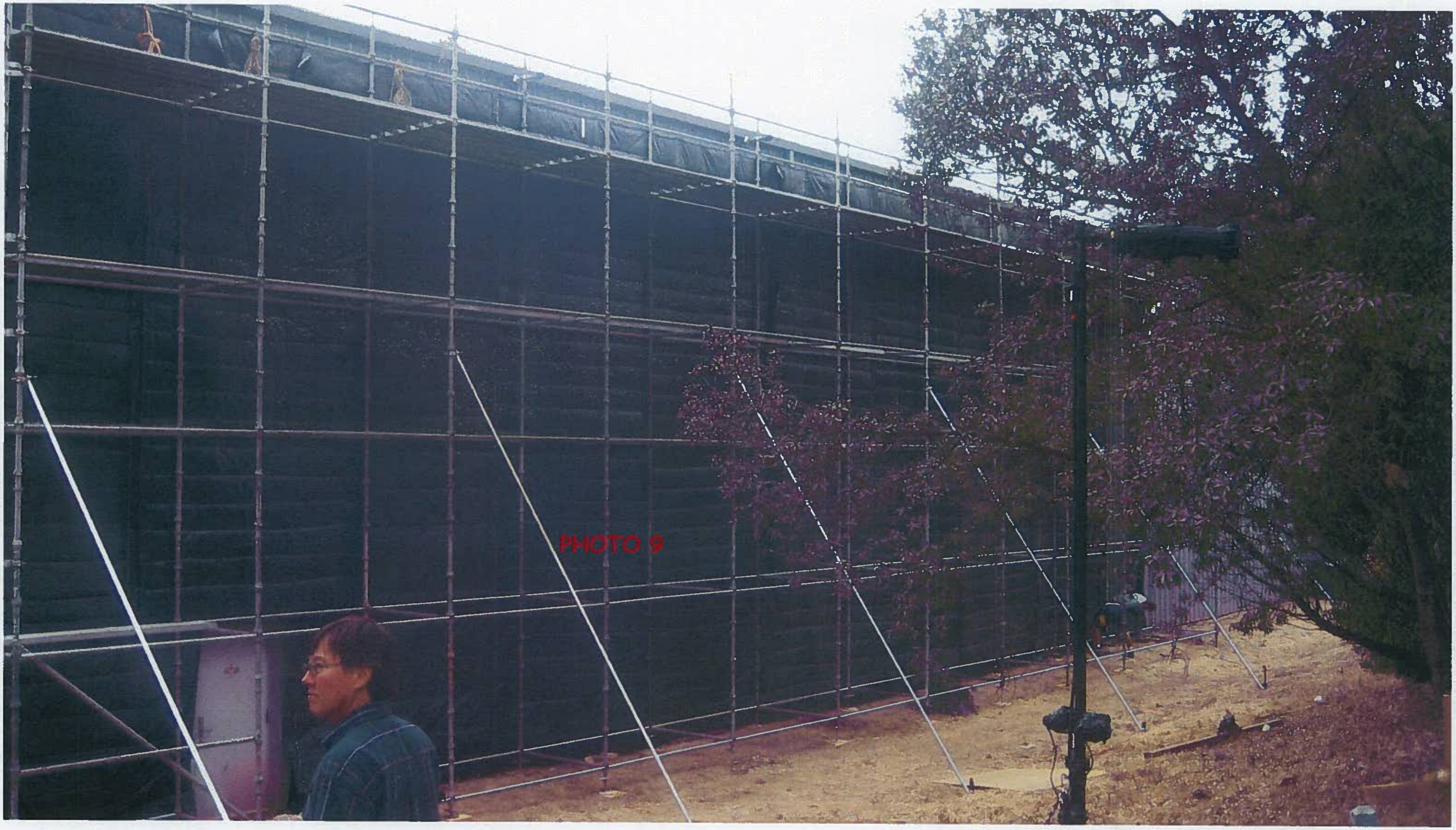


PHOTO 9


PHOTO 10

2010 UNIVERSAL STUDIOS WATER WORLD
NOISE IMPACT STUDY

INTRODUCTION

A sound impact study was conducted in order to assess sound levels emitted by Universal Studios at 100 Universal City Plaza, Universal City, California 91608. The purpose of the study was to investigate the noise impact by the Universal Studios Water World attraction on residential properties located in the Toluca Lakes area and on a commercial property located at Lakeside Golf Club at 4500 Lakeside Drive, Burbank, California 91505 and determine compliance with the County of Los Angeles Noise Ordinance.

Ambient noise levels were measured by the County of Los Angeles Environmental Health Staff during the period of Friday, November 12 and Saturday, November 13, 2010 as dictated by the Noise Ordinance. Alleged intrusive noise was monitored during the same period.

COUNTY OF LOS ANGELES NOISE ORDINANCE

The applicable Los Angeles County exterior noise standard is found in Section 12.08.390 of the Los Angeles County Code, Title 12, Environmental Protection, Noise Control Ordinance. Allowable noise levels are expressed in terms of a median level not to be exceeded on more than 50% of all the readings within any hour. Some other noise levels are allowed away from the median; therefore the larger the deviation, the shorter the allowable period of elevated noise, up to a + 20 dBA maximum level.

Applicable standards depend upon the noise sensitivity of the receiving land use. If the sound transmitter and the receiver have different zoning, the appropriate noise standard is the arithmetic mean of the transmitting and receiving land use, except for industrial zoning, where the receiving standard becomes the standard. The allowable Los Angeles County noise standards for residential zones from **7 a.m. to 10 p.m.** are:

Noise Standard	Time Duration in Minutes	Decibel Level (dBA)	Decibel Level (dBA) Adjustment for Impulsive Noise
L50	**Not to be exceeded for more than 30 minutes**	**50**	**45**
L25	**Not to be exceeded for more than 15 minutes**	**55**	**50**
L8.3	**Not to be exceeded for more than 5 minutes**	**60**	**55**
L1.7	**Not to be exceeded for more than 1 minute**	**65**	**60**
L max	**Never to be exceeded**	**70**	**65**

The allowable Los Angeles County noise standards for commercial zones from **7 a.m. to 10 p.m.** are:

Noise Standard	Time Duration in Minutes	Decibel Level (dBA)	Decibel Level (dBA) Adjustment for Impulsive Noise
L50	**Not to be exceeded for more than 30 minutes**	**60**	**55**
L25	**Not to be exceeded for more than 15 minutes**	**65**	**60**
L8.3	**Not to be exceeded for more than 5 minutes**	**70**	**65**
L1.7	**Not to be exceeded for more than 1 minute**	**75**	**70**
L max	**Never to be exceeded**	**80**	**75**

If noises are impulsive, such as gunfire and explosions, then the noise standards are reduced by 5 dBA. **If ambient noise levels exceed these thresholds the standard is adjusted upward to match the ambient noise level.**

Intrusive noise is defined as "alleged offensive noise which intrudes over and above the existing ambient noise at the receptor property (Section 12.08.210).

Impulsive noise is defined as a sound of short duration, usually less than one second and of high intensity, with an abrupt onset and rapid decay (Section 12.08.190).

Unless otherwise herein provided, no person shall operate or cause to be operated any source of sound at any location within the unincorporated county, or allow the creation of any noise on property owned, leased, occupied or otherwise controlled by such person which causes the noise level, when measured on any other property either incorporated or unincorporated to exceed any of the exterior noise standards.

SITE DESCRIPTION

Universal Studios is located in the East San Fernando Valley near the Cahuenga Pass, at 100 Universal City Plaza, bounded by the Los Angeles River Flood Control Channel to the north, Blair Drive to the east, the Hollywood Freeway (US-101) to the south and Lankershim

Boulevard to the west. The theme park is located at an elevation of approximately 750 feet above sea level. Several buildings act as noise barriers between the source and the sites of the complaints, along the Los Angeles River Flood Control channel. In addition other environmental conditions may have a significant impact on sound transmission originating from the park.

NOISE LEVEL MEASUREMENTS

Section 12.08.420, subsection B states that the location selected for measuring exterior noise levels shall be at any point on the receptor property, and at least four feet above the ground and ten feet from the nearest reflective surface.

The exterior noise was measured during the Water World event on November 12 and 13, 2010. The measurement sites were located at Lakeside Golf Club and the residential areas of Toluca Lakes including 10428 Valley Springs Lane, Toluca Lakes, CA 91505. Measurements were made using the B & K 2260 and Larson Davis 824 noise meters. The meters were calibrated before and after the measurements were taken. All measurements were made utilizing the A-weighted, fast response (dBA) scale.

FINDINGS:

- The applicable exterior noise standard (Lmax) was exceeded by noise sources not associated with the Water World event. Such noise sources were noted as:
    - Overflying aircraft (planes and helicopters)
    - Vehicle traffic near the receptor sites (Freeways and major streets)
    - Various unidentified amplified sounds
    - Sirens from emergency vehicles
    - Car Alarms
    - Golf activities
- Noise attenuating objects were observed such as buildings, trees, fences between the nearest source of alleged intrusive noise and the receptor properties.
- No adverse weather conditions such as high wind speed, rain or extreme overcast were present during the sound monitoring for both ambient and operation noise.
- Noise generated from the Water World attraction was intermittent during the study.
- Sound levels at the South property line at Hole 4 of the Lakeside Golf Club ranged from 44.3 dBA to 80.3 dBA on Friday, November 12, 2010. These levels included noise from aircraft, freeway traffic, street traffic, etc.

- Sound levels at the South property line at Hole 4 of the Lakeside Golf Club ranged from 44.4 dBA to 71.2 dBA on Saturday, November 13, 2010. These levels included noise from aircraft, freeway traffic, street traffic, etc.

- Sound levels at the South property line at 10428 Valley Springs Lane ranged from 45.2 dBA to 97.1 dBA on Friday, November 12, 2010

FINDINGS (continued):

- Sound levels at the South property line at 10428 Valley Springs Lane ranged from 44.6 dBA to 80.8 dBA on Saturday, November 13, 2010.

- Lmax reached inside the Water World attraction approximately adjacent to north end of the Water World attraction was 103.2 dBA.

CONCLUSION:

Universal Studios and its' Water World attraction was found to be in compliance with the Los Angeles County Noise ordinance and its exterior noise standards (see attached tables WW1-WW4 for details).

UNIVERSAL STUDIOS WATER WORLD EVENT (WW1)

LOCATION: RECEPTOR AT GOLF COURSE "HOLE 4" (SOUTH PROPERTYLINE) (B&K 2260) DATE: FRIDAY 11/12/10

COMPARISON OF WW EVENT AT 1PM & 3PM HR VERSUS AMBIENT & STANDARD; MEASURMENTS OF ~1 HR. DURATION.

EVENT	TIME	LFMX DBA	L1.7 DBA	L8.3 DBA	L25 DBA	L50 DBA	L90 DBA
AMBIENT	AVERAGE OF 1PM & 4PM (40MIN) HR	74.4	59.7	54.0	50.2	47.8	44.8
STANDARD (COMMERCIAL LAND USE)	7AM-10PM	75	70	65	60	55	NA
1ST INTRUSIVE EVENT (WW)	1 PM HR (EVENT 1:15-1:35)	77.4 (*~52 DBA)	65.8	63.0	57.1	51.0	44.3
2ND INTRUSIVE EVENT (WW)	3 PM HR (EVENT 3:15-3:35)	80.3 (*~54 DBA)	61.0	54.8	51.2	48.8	45.7

*THE MAXIMUM NOISE LEVEL OBSERVED AT RECEPTOR DURING WW FINAL EXPLOSION EVENT.

UNIVERSAL STUDIOS WATERWORLD EVENT (WW2)

LOCATION: RECEPTOR AT GOLF COURSE "HOLE 4" (SOUTH PROPERTYLINE) (LARSON DAVIS 824) DATE: SATURDAY 11/13/10

COMPARISON OF WW EVENT AT 12, 1, & 3PM HR VERSUS AMBIENT & STANDARD; MEASURMENTS OF ~1 HR. DURATION.

EVENT	TIME	LFMX DBA	L1.7 DBA	L8.3 DBA	L25 DBA	L50 DBA	L90 DBA
AMBIENT	AVERAGE OF 11(21 MIN), 2, & 4PM(21 MIN) HR	81.6	58.9	50.4	47.4	46.1	44.2
STANDARD (COMMERCIAL LAND USE)	7AM-10PM	75	70	65	60	55	NA
1ST INTRUSIVE EVENT (WW)	12 PM HR (EVENT 12:00-12:20)	71.2	57.9	52.6	49.2	47.5	44.4
2ND INTRUSIVE EVENT (WW)	1 PM HR (EVENT 1:10-1:30)	70.1	57.3	51.5	48.9	47.7	45.0
3rd INTRUSIVE EVENT (WW)	3PM HR (3:10-3:30)	69.0	56.8	50.5	47.8	46.6	45.1

UNIVERSAL STUDIOS WATERWORLD EVENT (WW3)

LOCATION: RECEPTOR AT RESIDENCE 10428 VALLEY SPRINGS LANE (SOUTH PROPERTYLINE) (LD 824) DATE: FRIDAY 11/12/10

COMPARISON OF WW EVENT AT 1, 3, & 4PM HR VERSUS AMBIENT & STANDARD; ~1 HR DURATION.

EVENT	TIME	LFMX DBA	L1.7 DBA	L8.3 DBA	L25 DBA	L50 DBA	L90 DBA
AMBIENT	2PM HR	80.9	67.1	61.8	55.7	50.0	46.3
STANDARD (RESIDENTIAL LAND USE)	7AM-10PM	65	60	55	50	45	
1ST INTRUSIVE EVENT (WW)	1 PM (18MIN)HR (EVENT 1:15-1:35)	74.8	58.0	52.0	48.6	46.8	45.3
2ND INTRUSIVE EVENT (WW)	3 PM HR (EVENT 3:15-3:35)	97.1	85.6	77.7	67.2	49.8	45.7
3RD INTRUSIVE EVENT (WW)	4 PM HR (EVENT 4:45-5:05)	84.1	72	55.6	48.9	47.4	45.2

UNIVERSAL STUDIOS WATERWORLD EVENT (WW4)

LOCATION: RECEPTOR AT RESIDENCE 10428 VALLEY SPRINGS LANE (SOUTH PROPERTYLINE) (B&K) DATE: SATURDAY 11/13/10

COMPARISON OF WW EVENT AT 12 PM, 1PM, & 3PM HR VERSUS AMBIENT & STANDARD; ~1 HR DURATION.

EVENT	TIME	LFMX DBA	L1.7 DBA	L8.3 DBA	L25 DBA	L50 DBA	L90 DBA
AMBIENT	2PM HR	78.2	58.2	51.0	48.5	47.5	46.2
STANDARD (RESIDENTIAL LAND USE)	7AM-10PM	65	60	55	50	45	
1ST INTRUSIVE EVENT (WW)	12 PM HR (EVENT 12-12:20)	74.1	57.0	50.5	47.1	45.9	44.6
2ND INTRUSIVE EVENT (WW)	1 PM HR (EVENT 1:10-1:20)	72.3	58.2	50.2	47.5	46.6	45.4
3RD INTRUSIVE EVENT (WW)	3 PM (55MIN) HR (EVENT 3:10-3:20)	80.8	60.9	52.8	49.4	48.0	46.8

Appendix FEIR-6

Environmental Ambient Noise Measurements

September 12, 2011

NBC UNIVERSAL
100 Universal City Plaza
Universal City, California 91608

Attention: Mr. Tom Smith

Subject: Environmental Ambient Noise Measurements
VA Project No. 2310-054

Dear Mr. Smith:

Based on the comments received from the public regarding the NBCUniversal City Evolution Plan - DEIR, this report evaluates whether the ambient noise levels that were considered for the DEIR are consistent with the existing ambient noise levels at the analyzed receptor locations. The DEIR considered forty-seven (47) receptor locations, which surrounded the proposed Project Site, whereby field noise monitoring was completed between February and July 2007. The evaluation of these noise levels involved field monitoring of a percentage (approximately 26%) of the 47 receptor locations considered in the DEIR. The monitoring was completed between May and June of 2011.

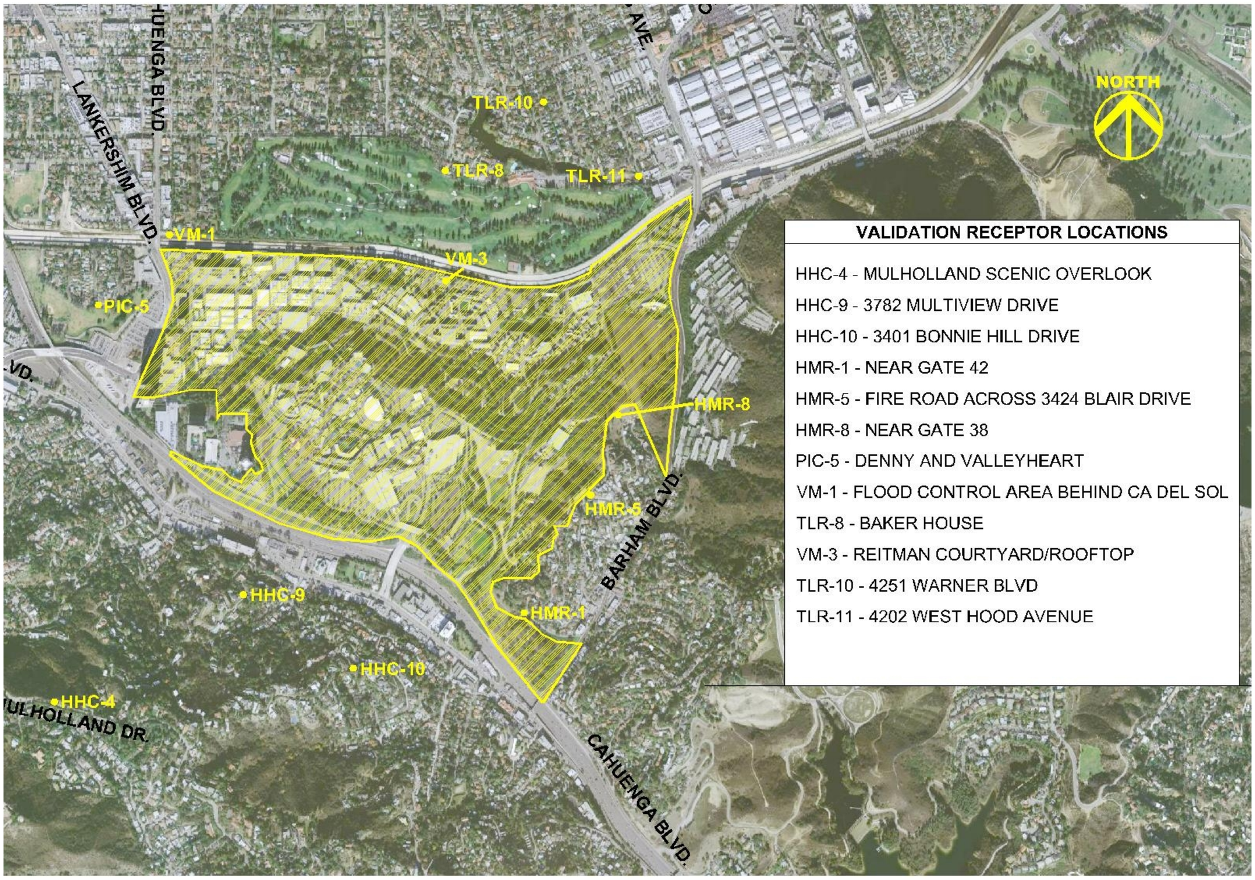
Noise Monitoring & Locations

The field noise monitoring was completed by Veneklasen Associates (VA) personnel, between May 11 and June 10, 2011. The continuous (minimum 24-hours) noise monitoring was completed at twelve (12) locations which includes one receptor in each of the Recptor Areas analyzed in the Draft EIR (see the figure below). The noise monitoring equipment consisted of an ANSI S1.4 precision sound level meter type 2260 from Brüel & Kjaer, which was housed in a metallic utility box. The sound level meter was powered by a 12-Volt sealed acid battery and the microphone and pre-amplifier were connected to a rod protruding 18-inches from the access panel of the utility box. The equipment was mounted on the Department of Water & Power's (DWP's) utility poles, approximately 10 feet above street level with the exception of locations (VM-1, VM-3 & TLR-8). The three aforementioned locations instead utilized six-foot tripods (VM-3 & TLR-8) and a metal conduit with a concrete base was utilized to elevate the microphone 10 feet above the edge of the control channel (VM-1), while the meters and batteries resided in pelican cases.

Of the twelve monitored receptor locations, three were not situated near the immediate locations utilized during the 2007 monitoring program due to access isusses. The three locations were (VM-1, VM-3 & TLR-8). Location VM-1 was located along the Flood Control Channel, south of the Ca'Del Sole restaurant at 4100 Cahuenga Boulevard. The location is roughly 680 feet west from TLR-5. Location VM-3 was located at the courtyard of the Reitman Building on the Universal Studios Hollywood (USH) backlot. This location was roughly 200 feet south of TLR-7. Location TLR-8 was relocated to the backyard of 10098 Valley Spring Lane, where in 2007 the monitoring location was the curbside of the street.

During monitoring, rain was observed to occur from May 16 through the morning of May 18, 2011. The acquired data from these dates were excluded from the evaluation process. Further, Memorial Day occurred on May 30, 2011, and to avoid a non-typical work date, monitoring was postponed on May 30 &31.

Figure 1. Monitoring Locations



Noise Monitoring Data

The monitored data was processed and complied with respect to the noise metrics presented in the DEIR (see Table 1, below). The data presented in Table 1 has side by side values of the Year 2007 and Year 2011 ambient noise levels.

In terms of CNEL comparison, the Year 2011 noise levels are equal or greater than the 2007 levels with the exception of three locations. The three locations are HHC-4, HMR-8 & TLR-8. At HHC-4 & HMR-8 the noise differential is only 1 decibel and considered a negligible change. At TLR-8, the noise differential is 7 dB. This appears to be due to the change in the monitoring location with respect to the original location.

When the lowest L_{50} for daytime (7 am to 10 pm) noise is considered, the noise differential was 1 to 2 dB for five of the receptor locations, with the 2 dB variation occurring at HMR-5. These differentials are considered a negligible change. During the nighttime hours (10 pm to 7 am) the noise differential was determined to be 1 to 4 dB at seven receptor locations. Three locations (HMR-5, HMR-8 & TLR-8) had a 3 dB variation with respect with the 2007 noise levels. Receptor location TLR-10 was determined to have a noise variation of 4 dB.

The lowest L_{max} noise metric has greater variations between the 2011 and 2007 measured noise levels with up to 5 dB higher and lower during daytime hours and up to 7 dB lower and 5 dB higher during nighttime hours. These maximum levels are likely attributable to various factors (i.e., aerial fly-overs, vehicular pass-bys, gardening, etc.).

Table 1. 2011 Measured Noise Levels at Monitored Locations

Community Receptor Location	Designated Descriptor	Community Noise Equivalent Level (CNEL)		Lowest Measured L50 7 a.m. – 10 p.m.		Lowest Measured L50 10 p.m. – 2 a.m.		Lowest Measured Lmax 7 a.m. – 10 p.m.		Lowest Measured Lmax 10 p.m. – 2 a.m.	
		2007	2011	2007	2011	2007	2011	2007	2011	2007	2011
Cahuenga Pass	HHC 4	67	66	55	54	48	48	81	82	77	78
	HHC 9	60	62	48	52	48	52	68	70	59	65
	HHC 10	61	63	51	55	46	50	71	73	72	73
Hollywood Manor	HMR 1	65	68	54	59	56	59	69	72	68	72
	HMR 5	56	56	47	45	45	42	65	70	61	57
	HMR 8	58	57	49	48	45	42	65	68	64	61
Weddington Park (South)/Island	PIC 5	64	66	56	58	54	55	73	74	70	70
Toluca Lake	TLR 8	62	55	42	43	43	40	73	68	64	57
Lakeside Golf Club	TLR 5	60	62	51	55	51	53	69	70	61	69
	TLR 7	58	61	49	48	47	45	66	69	57	60
Burbank	TLR 10	56	56	46	45	44	39	70	65	60	65
	TLR 11	63	63	49	49	43	42	72	69	71	74

Evaluation

The monitored data that was acquired between May and June 2011 is similar to the data set that was acquired during the 2007 monitoring program, for the CNEL and daytime L_{50}. For the nighttime noise metrics of L_{50} and L_{max} there are some instances (three to five locations) where the noise level is materially lower or higher now than in 2007. In the case of TLR-8, the location of noise monitoring location is the cause of the lower noise levels.

We trust this information meets your needs at this time. If you have any questions or comments, please do not hesitate to call.

END

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Appendix A – Tabulated Data

ID	**HHC 4 Mulholland Scenic Overlook Park**								**ID**	**HHC 4 Mulholland Scenic Overlook Park**							
10 July, 2007									2 June, 2011								
Hour	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	L_{99}	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	L_{99}	
0	58	86	43	70	56	50	47	45	61	97	46	68	54	51	49	48	
1	55	80	40	68	55	48	45	43	53	80	44	63	51	48	46	45	
2	52	75	43	63	53	49	47	45	54	78	45	64	53	51	48	46	
3	50	68	42	57	51	48	46	44	53	76	44	63	52	49	47	46	
4	51	74	42	60	51	48	46	44	52	73	46	61	52	51	49	47	
5	55	79	45	65	56	52	49	47	56	77	48	64	57	54	52	50	
6	60	79	50	72	60	54	53	51	60	79	52	72	60	55	54	53	
7	64	83	49	74	68	55	51	50	64	84	50	75	68	55	52	51	
8	66	81	48	75	71	59	51	49	65	85	49	75	70	57	52	51	
9	65	82	49	75	70	59	53	50	65	88	49	75	70	57	53	51	
10	65	91	49	74	69	57	53	51	64	85	49	75	68	56	53	51	
11	64	85	50	75	68	56	53	52	63	82	50	74	67	55	52	51	
12	64	83	48	74	68	57	52	50	65	90	48	75	67	54	51	50	
13	63	82	48	74	68	55	51	50	63	83	49	74	67	55	52	51	
14	68	84	49	80	72	60	53	50	63	84	49	74	67	55	52	50	
15	65	87	48	76	69	57	51	50	64	86	47	74	68	55	51	49	
16	65	85	49	75	69	58	52	50	65	88	48	75	69	56	51	50	
17	66	86	48	75	70	59	51	49	65	91	48	75	69	56	51	50	
18	67	93	48	76	72	61	52	50	65	91	49	75	70	57	52	50	
19	65	83	50	75	70	58	52	51	64	92	50	74	67	55	53	51	
20	63	88	50	74	68	55	52	51	63	85	51	74	65	55	53	52	
21	61	83	49	72	63	55	52	50	61	89	51	72	62	56	53	52	
22	63	81	45	75	67	54	48	46	59	78	50	70	59	55	53	52	
23	58	77	45	70	59	51	48	47	59	87	49	70	58	54	52	50	
CNEL	67								66								

	ID HHC 9 3782 Multiview 26 June, 2007								ID HHC 9 3782 Multiview 2 June, 2011							
Hour	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	L_{99}	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	L_{99}
0	49	59	45	52	50	49	47	46	55	74	48	61	56	54	52	51
1	51	77	44	59	50	48	47	46	52	65	46	56	54	52	50	49
2	48	64	45	51	49	48	47	46	52	71	45	55	54	52	49	47
3	48	67	45	51	49	47	46	46	53	64	45	57	55	52	49	47
4	50	67	46	54	51	50	48	47	54	66	46	58	56	54	51	49
5	53	67	48	58	54	53	51	49	58	72	50	65	60	58	55	52
6	56	74	47	65	59	53	51	49	58	75	54	66	59	57	56	55
7	56	82	48	63	57	52	51	49	56	78	51	64	56	54	53	52
8	58	71	49	66	61	56	51	50	53	70	49	59	54	53	52	51
9	58	73	47	64	62	57	52	49	53	71	48	58	55	53	51	50
10	63	78	50	71	66	60	53	52	60	83	51	72	59	56	54	53
11	61	84	50	67	63	59	56	53	55	77	49	62	56	54	52	51
12	63	81	49	73	67	59	54	51	56	75	50	64	57	55	53	51
13	55	76	46	65	58	52	49	48	56	77	49	65	56	54	52	51
14	54	78	47	62	56	52	50	48	54	72	48	61	56	53	51	50
15	55	79	47	63	58	53	49	48	54	75	48	64	55	53	51	50
16	57	83	47	67	57	52	50	48	53	76	47	59	54	52	51	49
17	53	77	46	60	53	49	48	47	55	71	49	62	56	54	52	50
18	50	75	45	55	51	48	47	46	54	71	50	59	56	54	53	52
19	51	69	46	58	52	50	49	47	54	72	50	59	55	54	52	51
20	52	68	49	60	53	51	50	49	56	71	52	61	57	55	54	53
21	51	71	47	56	52	50	49	48	56	77	51	62	57	55	54	53
22	51	61	47	57	53	50	49	48	56	77	51	62	56	55	53	52
23	50	61	47	53	51	49	48	48	56	91	48	67	55	53	52	50
CNEL	60								62							

ID HHC 10 3401 Bonnie Hill Drive									ID HHC 10 3401 Bonnie Hill Drive							
10 July, 2007									2 June, 2011							
Hour	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	L_{99}	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	L_{99}
0	51	72	43	62	51	48	46	44	53	76	47	61	54	51	50	48
1	53	77	40	66	49	46	44	42	50	73	45	54	52	50	48	47
2	53	78	42	65	52	48	45	43	50	76	43	54	51	49	47	45
3	48	68	40	55	50	47	44	42	52	74	45	56	54	51	49	47
4	51	69	43	59	54	48	46	44	54	64	48	58	56	54	52	50
5	56	74	45	68	59	52	49	47	58	75	52	67	59	57	55	54
6	56	74	49	68	57	53	51	50	59	74	53	68	59	57	55	54
7	62	85	48	74	64	53	51	50	58	80	51	68	58	55	54	53
8	55	73	47	66	56	51	49	48	57	80	52	66	58	55	54	53
9	54	73	48	61	55	52	50	49	57	73	52	64	58	56	55	53
10	56	90	47	64	56	52	50	49	61	77	53	70	64	58	56	54
11	55	77	48	63	57	53	51	50	58	81	52	67	59	56	54	53
12	57	80	48	69	57	52	50	49	58	78	51	68	59	56	54	53
13	55	82	48	64	56	52	50	49	60	83	51	71	59	56	54	52
14	56	82	47	64	55	51	50	48	56	73	49	64	57	55	52	51
15	54	74	47	64	55	51	49	48	57	76	50	68	58	55	53	52
16	59	83	47	69	63	54	49	48	56	73	50	64	58	55	53	51
17	59	81	47	73	56	51	50	48	57	77	51	65	59	56	54	53
18	54	74	47	63	55	51	49	48	58	76	52	64	59	57	56	54
19	54	74	48	65	55	52	50	49	58	74	53	65	59	57	55	54
20	54	75	48	63	55	52	50	49	59	77	54	66	60	58	57	56
21	53	71	47	62	54	51	49	48	59	74	54	65	60	58	57	56
22	54	74	45	67	53	50	49	47	59	80	53	65	59	58	56	55
23	52	73	45	61	52	49	48	46	58	82	52	69	59	57	55	54
CNEL	61								63							

ID HMR 1 Gate 42									ID HMR 1 Gate 42							
26 July, 2007									19 May, 2011							
Hour	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	L_{99}	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	L_{99}
0	57	68	49	61	59	56	54	52	61	72	54	66	63	61	58	56
1	57	73	48	63	59	56	53	51	62	77	52	68	64	61	58	54
2	57	71	48	62	59	56	53	51	61	76	47	68	64	59	55	51
3	57	69	48	62	60	56	53	51	59	70	46	66	62	57	53	50
4	59	73	48	63	61	58	55	52	58	67	46	64	61	58	55	50
5	61	73	53	65	63	60	57	55	64	92	49	70	64	62	58	55
6	62	74	56	67	63	61	60	58	63	71	60	66	65	63	62	61
7	60	75	56	67	61	59	58	57	62	74	57	65	64	62	60	59
8	59	72	53	67	60	58	56	55	60	80	55	68	61	59	58	56
9	57	79	49	65	59	55	53	52	61	77	54	68	62	60	58	57
10	57	70	50	63	60	56	54	52	61	75	54	65	63	61	59	57
11	57	70	50	63	60	56	53	52	62	79	53	67	64	62	59	57
12	55	69	49	63	57	54	52	51	62	75	55	66	64	62	59	57
13	57	73	50	64	59	55	53	52	63	78	55	67	64	62	60	58
14	57	75	49	66	59	55	53	52	63	80	57	69	65	63	61	59
15	59	76	50	67	63	55	52	51	62	77	53	67	64	61	59	56
16	59	74	50	69	63	56	53	51	62	79	55	68	63	61	59	58
17	58	84	49	67	59	55	52	51	61	72	55	65	63	61	59	58
18	56	69	49	64	58	54	52	51	61	78	54	69	62	60	58	57
19	56	69	50	62	58	55	53	52	60	78	55	65	61	59	58	56
20	58	78	51	67	58	56	54	53	62	83	56	68	62	61	59	58
21	57	77	53	60	58	57	55	55	61	76	55	66	62	60	59	57
22	57	71	53	61	59	57	56	54	61	77	56	64	62	61	59	58
23	57	75	50	61	58	56	54	52	61	75	54	65	62	61	59	57
CNEL	65								68							

ID	HMR 5 Fire Road Across 3424 Blair Drive								HMR 5 Fire Road Across 3424 Blair							
	8-9 February, 2007								19 May, 2011							
Hour	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	L_{99}	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	L_{99}
0									46	57	42	50	47	46	45	44
1									46	64	40	55	46	44	43	42
2									47	69	39	61	44	42	41	40
3									42	59	38	46	43	41	40	39
4									46	64	39	51	49	45	41	40
5									52	77	42	59	51	47	45	44
6									49	74	46	55	50	48	47	46
7									52	78	46	60	54	50	48	47
8									56	88	44	68	54	49	46	45
9									54	82	44	63	52	48	46	45
10									52	74	45	61	53	49	47	46
11									53	79	45	64	53	50	48	47
12									53	72	47	62	54	51	50	48
13									53	70	48	62	55	52	50	49
14									54	74	48	64	55	52	50	49
15									52	75	47	59	53	51	49	48
16	53	72	42		55	49	45	43	53	74	47	63	55	51	50	48
17	52	74	42		52	47	44	43	51	71	45	58	53	50	48	47
18	51	74	45		52	49	48	46	55	76	42	67	56	48	45	44
19	51	72	46		52	50	48	47	50	72	42	60	52	46	44	43
20	51	70	45		52	49	47	46	51	77	42	62	48	45	44	43
21	50	69	45		50	48	47	46	49	71	43	61	49	46	44	44
22	49	66	43		49	47	45	44	49	72	42	57	49	47	45	44
23	46	63	43		47	46	45	44	48	69	40	61	47	44	43	42
0	45	61	42		47	45	44	43								
1	45	62	42		46	45	44	43								
2	44	52	42		45	44	43	42								
3	45	63	42		47	45	44	43								
4	48	65	43		48	46	45	44								
5	51	64	46		52	50	47	47								
6	53	75	50		54	53	51	50								
7	54	72	49		57	53	51	50								
8	56	73	48		60	55	51	49								
9	50	72	45		52	49	47	46								
10	55	74	44		59	52	48	46								
11	53	72	44		55	51	47	46								
12	51	65	44		53	49	46	45								
13	52	73	43		56	51	47	45								
14	52	71	43		54	49	46	45								
15	53	74	44		54	50	47	46								
16																
CNEL	56								56							

	ID HMR 8 Near Gate 38								ID HMR 8 Near Gate 38							
	15-16 February, 2007								19 May, 2011							
Hour	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	L_{99}	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	L_{99}
0									46	61	42	52	48	45	43	42
1									46	73	40	53	47	44	42	41
2									46	67	37	58	46	42	39	39
3									42	57	37	48	44	41	39	38
4									44	58	38	50	46	43	40	39
5									53	79	40	62	55	49	44	42
6									52	65	44	59	54	51	48	46
7									57	74	46	67	59	53	49	47
8									56	77	42	68	57	51	48	44
9									62	80	43	75	62	51	47	45
10									55	78	44	67	56	50	47	45
11									52	68	44	61	54	50	48	46
12									56	77	45	67	59	52	49	47
13									57	84	45	71	55	51	48	47
14	53	81	45		55	51	48	46	55	82	45	65	56	51	48	47
15	53	82	46		55	51	49	48	52	80	45	60	54	50	48	46
16	53	70	46		55	51	49	47	53	74	44	63	55	50	48	46
17	56	79	46		58	51	49	48	58	79	43	69	63	50	47	45
18	51	66	46		53	50	49	47	54	74	41	65	56	49	46	43
19	51	69	45		53	49	47	46	52	71	41	63	54	49	45	42
20	53	70	45		54	51	48	46	53	77	41	65	52	48	45	43
21	52	65	47		54	51	49	48	50	70	41	59	51	48	45	43
22	52	68	45		53	51	49	47	48	71	40	58	49	46	43	42
23	50	66	44		52	49	47	45	47	67	38	58	48	44	41	40
0	49	69	43		50	48	46	44								
1	46	64	42		48	45	43	42								
2	46	62	42		48	46	44	43								
3	55	83	42		50	48	45	43								
4	50	60	45		52	50	48	46								
5	53	65	47		55	52	50	48								
6	55	65	49		56	55	52	50								
7	55	81	51		56	54	53	52								
8	55	73	50		56	53	52	51								
9	53	71	50		55	53	52	51								
10	53	72	47		55	52	50	48								
11	55	78	44		55	51	49	46								
12	51	75	43		53	49	47	45								
13	53	73	43		54	50	47	45								
14																
15																
16																
CNEL	58								57							

ID WPC 5 Denny & Valleyheart 14 June, 2007									ID PIC 5 Denny & Valleyheart 9 June, 2011							
Hour	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	L_{99}	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	L_{99}
0	56	75	50	63	57	55	53	51	58	70	50	65	61	57	55	53
1	56	70	47	63	59	54	52	50	57	73	49	65	58	55	53	51
2	53	65	47	58	55	53	50	49	60	72	45	68	65	56	52	49
3	54	72	46	59	56	53	50	48	57	73	47	67	58	55	52	50
4	55	73	46	62	57	55	52	49	56	71	49	61	58	56	53	51
5	59	75	52	64	61	59	56	54	59	73	51	67	61	59	57	55
6	60	71	55	65	61	59	58	56	61	73	54	69	64	60	58	57
7	59	85	53	66	60	57	56	54	59	84	53	66	61	59	57	55
8	57	79	51	66	59	56	54	53	60	89	54	67	60	58	57	56
9	57	74	51	65	59	56	54	53	59	76	53	67	60	58	56	55
10	59	76	53	64	60	58	56	54	60	74	53	65	62	59	57	55
11	61	81	55	67	62	59	58	57	62	76	57	68	64	62	60	58
12	60	76	55	68	62	59	58	57	62	79	55	69	64	61	59	57
13	60	75	55	65	62	59	58	57	61	77	57	66	62	60	59	58
14	60	77	55	68	61	59	57	56	61	79	56	66	62	61	59	58
15	59	74	56	64	61	59	58	57	60	83	55	65	61	60	58	57
16	60	78	54	68	61	58	56	55	60	77	55	67	61	59	58	56
17	59	78	52	66	61	57	55	54	63	90	56	72	64	60	59	58
18	58	73	52	65	59	56	55	53	63	78	57	71	65	61	60	59
19	58	80	52	67	59	56	55	54	61	80	56	69	63	60	58	57
20	58	75	53	65	60	58	56	55	61	78	55	68	61	59	58	57
21	59	77	54	66	60	58	56	55	60	76	56	67	61	59	58	57
22	59	75	54	68	59	58	56	56	60	71	55	62	60	59	58	57
23	58	72	50	63	59	57	55	53	59	71	54	62	60	58	57	56
CNEL	64								66							

ID	**TLR 8**	**10098 Valley Spring Lane**							**ID**	**VM 2**	**10098 Valley Spring Lane**					
28 June, 2007									26 May, 2011							
Hour	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	L_{99}	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	L_{99}
0	46	73	39	51	47	44	43	42	41	57	37	47	42	40	39	38
1	46	64	39	56	49	43	41	40	45	67	38	56	44	42	40	39
2	46	61	38	59	49	43	41	40	41	65	37	50	42	40	39	38
3	41	53	38	44	42	41	40	39	44	68	36	57	42	39	38	38
4	44	72	36	48	44	41	39	37	40	52	37	43	41	40	39	38
5	46	69	36	57	47	41	39	38	43	56	37	50	45	41	39	38
6	53	81	36	63	54	45	40	38	47	66	38	57	50	44	41	39
7	55	79	34	64	58	48	40	36	56	77	41	66	60	50	45	43
8	53	75	35	64	57	47	41	37	60	87	40	73	59	51	44	42
9	53	76	36	64	54	47	41	39	52	74	40	62	54	46	43	42
10	57	78	38	69	59	47	42	40	51	76	43	61	54	47	45	44
11	71	87	40	81	77	56	45	42	51	73	43	61	53	47	45	44
12	71	93	41	81	76	65	56	45	56	71	43	66	57	47	45	44
13	68	90	42	82	64	55	45	43	54	76	44	63	56	50	47	46
14	59	87	41	69	56	46	43	42	57	83	45	67	58	49	47	46
15	57	84	40	69	53	46	43	42	51	73	44	60	52	47	46	45
16	53	76	39	65	52	45	43	40	50	69	43	61	52	47	45	44
17	56	85	38	67	56	45	42	40	49	68	41	60	51	46	44	43
18	50	77	39	62	49	42	41	40	52	76	41	64	53	45	43	42
19	51	80	37	63	48	43	41	39	50	73	41	61	51	45	43	42
20	49	74	38	61	47	42	40	39	49	72	41	60	52	44	43	42
21	49	73	40	61	46	43	42	41	50	70	38	61	54	43	40	39
22	50	76	41	59	48	45	43	42	49	67	39	60	52	43	41	40
23	48	70	42	51	48	47	44	43	47	66	39	57	52	42	40	40
CNEL	62								55							

	ID TLR 5 Lakeside Golf Course Hole 13								ID VM1 Flood Control Channel							
	7-8 February, 2007								8 June, 2011							
Hour	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	L_{99}	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	L_{99}
0									54	69	51	61	56	53	53	52
1									54	73	51	61	55	53	53	52
2									54	70	51	64	55	53	52	52
3									53	64	51	57	54	53	52	52
4									54	68	52	57	55	54	53	53
5									55	71	52	61	55	54	53	53
6									56	72	52	64	57	55	53	53
7									57	72	53	65	59	56	54	54
8									57	73	53	64	59	56	54	54
9									58	82	53	63	59	56	55	54
10									58	78	53	64	59	56	55	54
11	62	93	49	70	57	52	51	50	57	76	53	63	58	56	55	54
12	55	74	49	62	57	53	51	51	57	77	53	63	59	56	54	54
13	57	77	50	64	60	55	53	51	57	74	53	63	58	56	54	54
14	54	71	49	62	56	53	51	50	58	79	53	67	60	56	55	54
15	56	78	49	66	58	53	51	50	58	76	53	67	59	56	54	53
16	55	79	49	64	57	52	51	50	58	76	53	68	59	56	54	54
17	55	83	49	62	55	52	51	50	58	77	53	65	59	57	55	54
18	56	77	50	65	57	53	51	51	58	73	53	64	59	57	55	54
19	55	79	50	65	56	52	51	51	57	70	53	63	58	56	54	53
20	53	70	49	62	54	51	51	50	56	70	52	64	57	55	54	53
21	52	69	49	61	53	51	50	50	56	70	52	62	57	55	54	53
22	51	68	49	57	52	51	50	49	56	81	52	63	56	54	53	53
23	52	64	49	54	53	51	51	50	55	73	52	60	56	54	53	52
0	52	65	49	55	53	52	51	50								
1	51	61	49	53	52	51	50	50								
2	51	63	48	55	53	51	50	49								
3	51	66	48	57	52	50	50	49								
4	52	67	49	56	53	52	51	50								
5	53	71	49	60	53	51	51	50								
6	54	71	50	61	54	52	51	51								
7	57	77	51	67	60	54	52	51								
8	57	71	52	66	60	55	53	53								
9	57	75	50	67	59	54	52	51								
10	58	72	50	67	61	54	52	51								
11																
12																
13																
14																
15																
16																
CNEL	60								62							

Hour	ID TLR 7 Lakeside Golf Course Hole 5 7-8 February, 2007								ID VM 3 Reitman Building Courtyard 26 May, 2011							
	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	L_{99}	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	L_{99}
0									45	60	40	52	46	45	42	41
1									48	69	40	60	47	45	43	41
2									47	71	41	56	46	45	43	42
3									48	68	40	58	53	44	42	41
4									52	78	41	58	54	46	43	42
5									60	95	42	67	58	48	46	45
6									55	76	42	64	59	49	46	44
7									56	78	44	66	60	53	48	45
8									61	74	44	72	65	56	48	46
9									56	69	43	64	59	53	50	47
10									59	79	49	71	61	54	51	50
11	53	71	45	63	55	51	49	46	57	77	49	66	60	53	51	50
12	52	67	47	60	54	51	49	48	55	70	49	64	58	53	51	50
13	54	74	48	63	56	52	50	49	61	75	50	72	63	55	52	51
14	53	71	46	62	55	51	49	47	56	70	49	65	59	53	51	50
15	54	74	47	65	57	51	49	48	56	74	48	66	59	53	51	50
16	53	69	47	62	56	51	49	48	55	72	49	64	59	53	51	50
17	54	80	48	60	55	52	50	49	56	72	48	63	59	53	50	49
18	53	71	48	61	55	52	50	49	56	72	49	64	59	53	50	50
19	53	77	47	61	54	50	49	48	57	83	49	65	58	52	51	50
20	50	66	46	58	51	49	48	47	54	71	49	63	57	52	51	50
21	50	67	46	59	51	49	48	47	52	70	43	62	53	48	46	44
22	49	66	44	55	50	48	46	45	50	69	43	59	51	47	45	44
23	49	57	44	52	50	49	47	45	49	71	43	60	49	47	45	44
0	48	59	44	51	50	48	46	44								
1	48	67	42	52	49	47	45	43								
2	47	56	42	51	50	47	44	42								
3	53	74	42	64	53	48	44	43								
4	49	61	44	54	50	49	46	46								
5	51	71	45	63	52	49	47	46								
6	55	83	46	66	58	50	48	47								
7	55	72	49	65	58	53	51	50								
8	53	67	49	59	54	52	51	50								
9	53	69	46	61	55	51	49	48								
10	55	77	48	63	57	52	50	49								
11																
12																
13																
14																
15																
16																
CNEL	58								61							

	ID TLR 10 4251 Warner								ID TLR 10 4251 Warner							
	28 June, 2007								12 May, 2011							
Hour	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	L_{99}	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	L_{99}
0	47	72	40	52	48	46	43	41	44	65	37	54	45	41	39	38
1	44	60	38	48	47	44	40	39	51	85	35	58	42	39	38	36
2	44	69	38	55	44	42	40	39	40	63	33	50	41	39	36	35
3	41	60	37	47	42	40	39	38	42	69	34	44	42	39	37	35
4	43	56	39	48	44	42	41	40	49	73	37	59	44	41	39	38
5	48	71	42	58	48	46	44	43	48	60	40	53	50	47	44	42
6	51	70	42	64	51	47	45	43	49	67	40	58	50	47	45	43
7	52	72	41	62	56	48	43	42	52	69	39	62	56	48	43	41
8	51	70	40	63	54	47	42	41	51	69	39	62	54	47	42	41
9	53	76	40	65	54	46	43	41	52	78	39	63	53	45	42	41
10	52	75	40	64	54	46	43	41	54	73	40	66	55	48	44	42
11	52	71	42	64	53	46	44	43	52	69	45	62	54	48	47	46
12	53	78	43	64	54	47	45	44	55	83	42	66	53	46	44	43
13	56	81	42	66	58	51	46	43	58	74	43	68	63	50	46	44
14	58	76	46	68	63	53	48	47	54	79	44	64	55	49	47	45
15	56	76	45	67	58	50	48	46	56	79	45	64	57	51	48	46
16	53	78	44	64	55	50	47	45	56	72	45	64	60	52	48	46
17	54	75	42	65	57	48	46	44	55	78	43	65	58	49	46	44
18	54	71	44	65	57	50	47	45	55	82	41	66	60	47	44	42
19	52	73	41	63	54	47	45	43	54	71	42	64	57	49	46	43
20	51	74	44	62	52	48	46	45	54	76	43	66	54	47	45	44
21	53	81	42	64	53	47	45	43	50	65	42	60	52	47	44	43
22	49	67	43	56	50	48	46	44	50	70	40	61	52	44	42	41
23	50	68	44	60	50	48	47	45	45	65	39	52	46	44	42	41
CNEL	56								56							

	ID TLR 11 Rose & Lakeside, 12 July, 2007								ID TLR 11 Rose & Lakeside, 12 May, 2011							
Hour	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	L_{99}	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	L_{99}
0	48	73	41	58	48	45	43	42	47	74	39	59	44	42	41	40
1	47	71	40	56	46	43	42	41	48	74	39	60	46	42	41	40
2	45	64	41	50	46	44	43	42	44	66	38	53	44	41	40	39
3	45	61	41	49	46	44	43	42	44	69	38	49	44	42	40	39
4	47	67	41	57	49	45	43	42	48	70	39	59	47	43	42	41
5	51	73	44	60	52	49	46	45	62	80	43	75	65	52	48	45
6	57	82	47	65	57	53	50	49	57	83	43	67	55	50	48	45
7	58	81	44	70	59	52	47	45	54	74	42	65	57	49	45	44
8	54	72	43	64	57	50	47	45	57	85	43	67	59	50	47	45
9	56	81	46	65	58	52	49	47	55	75	43	66	58	50	46	44
10	58	81	45	71	59	51	48	46	60	81	42	74	60	50	45	43
11	55	74	46	65	57	51	49	47	71	100	43	85	66	52	46	45
12	74	89	46	87	77	53	50	48	56	73	44	65	59	53	47	45
13	58	80	48	68	60	53	50	49	56	72	46	65	60	53	49	47
14	57	77	47	68	60	52	50	49	58	79	46	68	60	52	49	47
15	59	87	49	69	60	53	51	50	57	84	46	67	59	52	49	48
16	57	74	49	66	60	53	51	50	57	83	46	67	59	52	49	48
17	61	83	47	69	65	55	50	49	58	80	45	68	61	53	49	47
18	56	78	46	66	60	52	49	47	57	73	45	67	61	52	48	46
19	54	76	45	65	57	50	48	47	56	74	44	66	59	51	48	47
20	53	72	45	64	54	49	47	46	55	76	43	66	59	49	46	44
21	54	81	44	64	56	49	47	46	52	69	43	63	54	49	46	45
22	54	77	45	65	54	48	47	46	54	82	42	63	55	49	44	43
23	51	77	43	62	50	47	46	45	50	75	42	62	49	45	44	43
CNEL	63								63							

Appendix FEIR-7

Supplemental Noise Study Technical Report—Forest Lawn Drive

SUPPLEMENTAL ASSESSMENT OF ENVIRONMENTAL NOISE

NBC UNIVERSAL EVOLUTION PLAN
Supplemental Noise Study – Technical Report
Forest Lawn Drive

April 2012

By

Veneklasen Associates, Inc.

EXECUTIVE SUMMARY

The City of Los Angeles has released a Draft Environmental Impact Report (Draft EIR) for the proposed NBC Universal Evolution Plan. The Draft EIR included an analysis of the impacts of construction noise, including noise generated by haul truck trips traveling along haul routes, on noise sensitive uses as defined by the *L.A. CEQA Thresholds Guide* in the vicinity of the proposed Project. The Draft EIR did not include an analysis of impacts on Forest Lawn Memorial Park Association property because the *L.A. CEQA Thresholds Guide* does not identify this type of facility as a noise sensitive use.

As stated in the Draft EIR, the *L.A. CEQA Thresholds Guide* designates the following as noise sensitive uses: "residences, transient lodgings, schools, libraries, churches, hospitals, nursing homes, auditoriums, concert halls, amphitheaters, playgrounds, and parks." Cemeteries and memorial parks are not identified as noise sensitive uses by the *L.A. CEQA Thresholds Guide.* Therefore, Project construction noise impacts on the Forest Lawn Memorial Park Association property would not be considered significant.

In response to a comment to the Draft EIR, the following supplemental noise study was completed to analyze potential construction noise impacts on the Forest Lawn Memorial Park Association property. This supplemental analysis is provided for informational purposes only since the Forest Lawn Memorial Park Association property is not a noise sensitive use as defined by the *L.A. CEQA Thresholds Guide*. However, following the approach taken for the Draft EIR, the thresholds for noise sensitive uses were applied to the Forest Lawn Memorial Park Association property, and the following is an analysis of the potential construction hauling noise impacts on the Forest Lawn Memorial Park Association property that could result from development of the NBC Universal Evolution Plan.

Similar to the analysis in the Draft EIR, this supplemental analysis considers temporary noise impacts along the Forest Lawn Drive construction hauling route for the following conditions:

- Studio, Entertainment & Business (SEB) Area Construction - Only
- Universal Mixed-Use (UMU) Residential Construction - Only
- Composite (SEB & UMU) Construction
- Cumulative (SEB, UMU & Off-Site Related Projects) Construction

The supplemental noise analysis consisted of ambient noise monitoring and traffic noise modeling according to the means established by the Federal Highway Administration's (FHWA) Traffic Noise Model (TNM).

The ambient noise monitoring consisted of three (3) representative locations along Forest Lawn Drive adjacent to the Forest Lawn Memorial Park Association property and each location was monitored for 24 continuous hours. The noise levels are reported in the same fashion as in the Draft EIR, whereby the Equivalent Continuous Sound Level (L_{eq}) acoustical metric between the hours of 7 a.m. to 7 p.m. is reported.

The noise modeling utilized the calculation methods of the TNM computer model. The model considered the typical traffic flow conditions documented in the EIR[1] as well as the ''Peak" construction haul truck trips along Forest Lawn Drive.

INTRODUCTION

The Applicant has proposed the NBC Universal Evolution Plan, to be developed at the Applicant's Universal City property. The Project includes development in the Entertainment, Studio, Business, and Mixed-Use Residential Areas of the Project Site, as described in Section II, Project Description, of the Draft EIR. The Draft EIR considered construction haul routes along Lankershim Boulevard, Forest Lawn Drive, and Buddy Holly Drive. This analysis

[1] Table 29 Existing Daytime Hourly Traffic Conditions

considers the potential noise impacts on the Forest Lawn Memorial Park Association property along Forest Lawn Drive only, as noise from hauling activities on the Lankershim Boulevard and Buddy Holly Drive would attenuate due to distance and intervening barriers and would not be audible at Forest Lawn Memorial Park Association property.

The Project Site is bounded by the Los Angeles River Flood Control Channel to the north, the Hollywood Freeway to the south, Barham Boulevard and residences to the east, and Lankershim Boulevard and the Universal City Metro Red Line Station to the west. Forest Lawn Drive commences north of the Oakwood Garden Apartments at Barham Boulevard and continues eastbound to the (CA-134) Ventura Freeway. Forest Lawn Drive is bounded by the Los Angeles River Flood Control Channel to the north and by the Santa Monica Mountains, Forest Lawn Memorial Park and Mount Sinai Memorial Park cemeteries, and Griffith Park lands to the south.

The Forest Lawn Memorial Park Association property could experience increased noise levels from construction related activities, limited to construction haul truck trip noise. Construction activity related noise occurring within the Project Site would not be audible over ambient noise levels as the Forest Lawn Memorial Park Association property is located at relatively far distances (i.e., approximately 3,200 feet from the Forest Lawn Drive and Barham Boulevard intersection to the western-most property line of Forest Lawn cemetery) and the Santa Monica Mountains provide an effective natural noise barrier.

The Forest Lawn Memorial Park Association property is a cemetery/mortuary facility located in the City of Los Angeles. The *L.A. CEQA Thresholds Guide* identifies noise sensitive uses as: "residences, transient lodgings, schools, libraries, churches, hospitals, nursing homes, auditoriums, concert halls, amphitheaters, playgrounds, and parks." Cemeteries are not identified as noise sensitive uses, so the Project noise analysis focused on noise sensitive uses, such as the Rancho Neighborhood. Therefore, pursuant to the *L.A. CEQA Thresholds Guide,* the NBC Universal Evolution Plan's construction and haul truck trip noise impacts would not be considered significant with respect to the Forest Lawn Memorial Park Association property.[2] However, the Forest Lawn Memorial Park Association submitted a comment letter on the Draft EIR for the NBC Universal Evolution Plan asserting that noise from hauling operations associated with the NBC Universal Evolution Plan would have significant impacts on the Forest Lawn Memorial Park Association property. For purposes of the analysis contained herein, the thresholds for noise sensitive uses were applied to the Forest Lawn Memorial Park Association property, and the following is an analysis of the Project's potential construction haul truck trip noise impacts on the Forest Lawn Memorial Park Association property.

NOISE SIGNIFICANCE THRESHOLD

For informational purposes and consistent with the analysis presented in the Draft EIR, a significant impact would result if the Project or cumulative noise impacts associated with hauling activities exceeds the minimum ambient L_{eq} between the hours of 7 a.m. and 7 p.m. by more than 5 dB.

SITE CONDITIONS

A) Existing Ambient

As defined by the *L.A. CEQA Thresholds Guide*, the Forest Lawn Memorial Park Association property is not considered to be a noise sensitive use. Therefore, the noise monitoring conducted for the Draft EIR did not include the Forest Lawn Memorial Park Association property. In order to conduct this supplemental analysis, additional monitoring was conducted.

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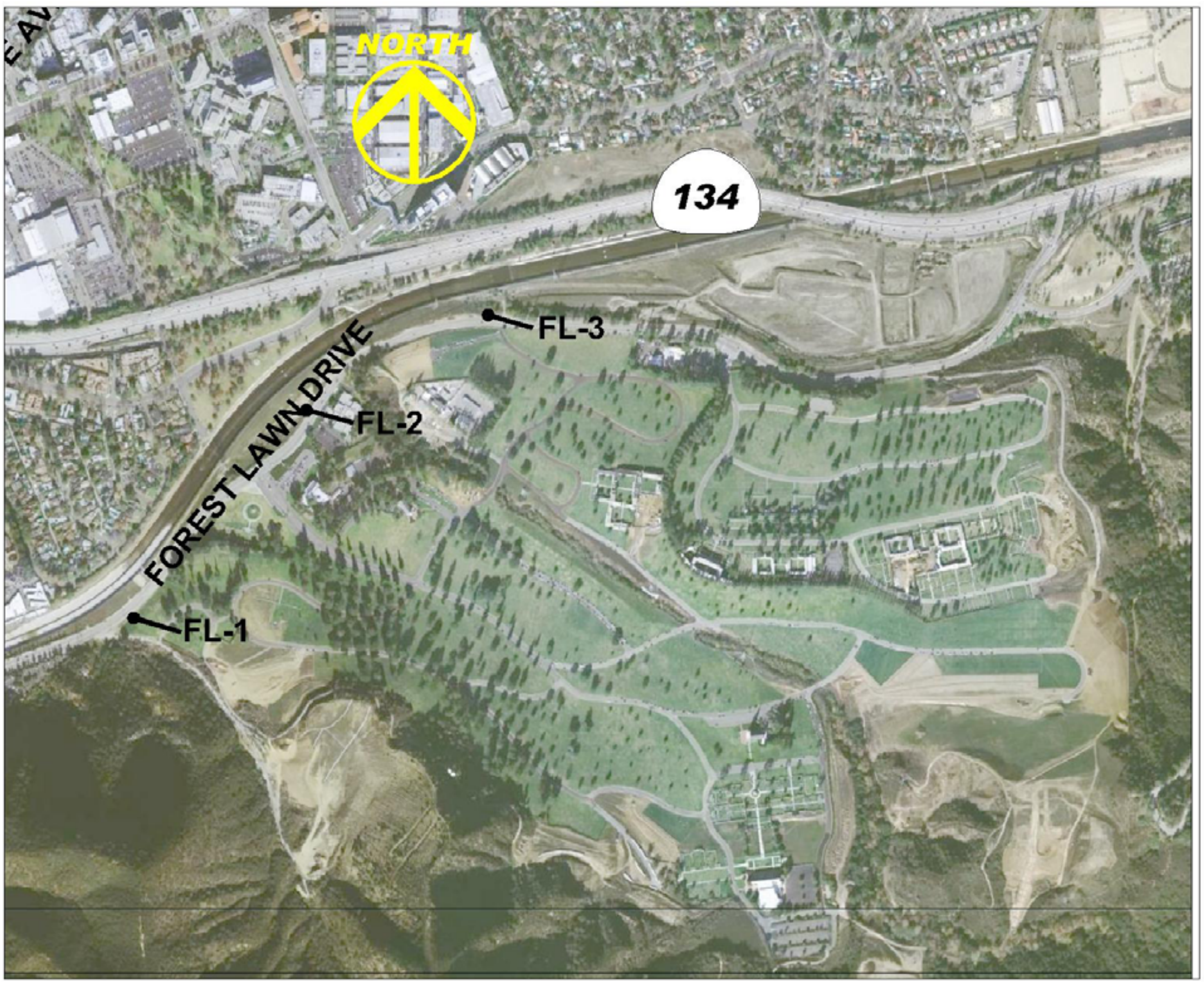
[2] Similarly, Section IV.I of the Draft EIR for the Forest Lawn Memorial Park – Hollywood Hills Master Plan, February 2011, does not consider such uses to be noise sensitive pursuant to the *L.A CEQA Thresholds Guide*.

Ambient noise monitoring was performed along Forest Lawn Drive at three (3) representative locations adjacent to the Forest Lawn Memorial Park Association property. The field monitoring commenced on May 23, 2011 and ended on May 25, 2011 where a continuous 24-hour data set was acquired for the receptor locations along Forest Lawn Drive. The equipment used for the monitoring, presented in the Appendix, consisted of an American National Standard Institute (ANSI) S1.4 type 1 sound level meter manufactured by Brüel & Kjaer model 2260. The three locations are considered to be representative of the Forest Lawn Memorial Park Association property as the locations are adjacent to the construction hauling route for the NBC Universal Evolution Plan with respect to the Forest Lawn Memorial Park Association property. The receptor locations are shown in Figure 1 and are:

- **FL-1:** At the west end of Forest Lawn Memorial Park Association property (GPS 34° 08' 50.7" N, 118° 19' 52 W)
- **FL-2:** East of the intersection of Forest Lawn and Memorial Drives (GPS 34° 09' 3.5" N, 118° 19' 37.8" W)
- **FL-3:** Intersection of Forest Lawn Drive and Greenwood Way (GPS 34° 09' 10.5" N, 118° 19' 23.7 W)

Figure 1. Monitoring Locations



The noise data, shown in Table 1, presents the values in A-weighted decibels (dBA) for the Equivalent Continuous Noise Level (L_{eq}) metric for the lowest measured hourly level between the hours of 7 a.m. to 7 p.m. Since the hourly noise level changes throughout the day (hour to hour), the lowest measured hourly level (between 7 a.m. and 7 p.m.) was utilized as the ambient noise level at each receptor location for the purposes of the threshold. Since the threshold of significance relates to whether there is an increase in the ambient L_{eq} by more than 5 dB, using the lowest measured hourly ambient level results in the most conservative threshold for purposes of this analysis.. Details of the measured data are included in the Appendix.

Table 1 Existing Lowest Measured L_{eq} Levels at Monitored Forest Lawn Drive Receptor Locations

Community Receptor Location	Designated Descriptor	Lowest Measured 7 a.m. – 7 p.m. L_{eq} (dBA)
Forest Lawn	FL-1	72.1
	FL-2	72.1
	FL-3	74.6

B) Noise Sources

There are various types of noise sources that impact the Forest Lawn Memorial Park Association property. The following noise sources represent the existing acoustical environment observed along Forest Lawn Drive.

1) Traffic Noise – Forest Lawn Drive

Vehicular noise along Forest Lawn drive occurs on a regular basis. The traffic flow is typically free flowing.

2) Traffic Noise – CA 134

Vehicular noise along the CA-134 Freeway is constant with free flow conditions during noise non-rush hour traffic conditions.

3) Aerial Fly-Overs

Aircraft (airplane & helicopters) routinely fly over the Forest Lawn Memorial Park Association property and the general area.

4) Maintenance/Operations – Forest Lawn Memorial Association property

Noise sources include general gardening (i.e., lawn mowers, etc.), visiting vehicular traffic, and funeral processions.

5) Construction Noise

Specifically at FL-3, construction related noise due to the Department of Water and Power's (DWP) underground reservoir project.

NOISE MODELING

The California Department of Transportation published TeNS "Technical Noise Supplement" in October of 1998 to define how to predict traffic noise for projects in California. Section N-5520 requires that any traffic noise study conducted after March 30, 2000, utilize the calculation methods used by FHWA Traffic Noise Model (TNM).

Construction haul truck trips along Forest Lawn Drive were modeled with the Federal Highway Administration's (FHWA) Traffic Noise Model (TNM). Details of the noise model's validation were presented in the EIR.[3]

The modeling considers many factors that influence the affects of noise. One of these is the decay rate of noise. A point source (i.e., loudspeaker) typically has a decay rate of 6 decibels (dB) per doubling of distance, while a line source (i.e., constant traffic) would have a decay rate of 3 dB per doubling of distance in free field conditions, where no obstructions are present. These decay rates may vary depending on the surface between the noise source and receiving location. If the ground is hard (i.e., asphalt) the decay will likely remain the same, but should the ground be soft (i.e., dirt, grassy) then the decay rate may increase by as much as 1.5 dB per doubling of distance. The modeling will consider other variables which consist of:

- Obstructions - berms, buildings, etc. that may provide shielding between the source and receptor;
- Topography changes (i.e., inclines, declines) along the roadway;
- Vehicle mixture – percentage of light duty automobiles, trucks, etc. and their respective roadway speeds; and
- Vehicle flow – the traffic volume for the various classifications of vehicles.

The supplemental noise modeling incorporated the recommended mitigation measures indicated in Section IV.C, Noise, of the Draft EIR, specifically Mitigation Measure C-4, which would require a 15-foot tall sound barrier that would extend 0.4 miles along Forest Lawn Drive if Project hauling would result in more than 78 haul trips per hour along Forest Lawn Drive. The sound barrier would provide appreciable attenuation to the Rancho Neighborhood within the City of Burbank as stated in the DEIR, but also could result in increased noise levels towards the Forest Lawn Memorial Park Association property due to the noise reflected from the barrier. Thus, the inclusion of the sound barrier in the supplemental noise modeling provides for a more conservative analysis.

The Forest Lawn Memorial Park Association property could experience increased noise levels from construction hauling noise. Construction activity related noise occurring within the Project Site would not be audible over ambient noise levels as the Forest Lawn Memorial Park Association property is located at a relatively far distance (i.e., approximately 3,200 feet from the Forest Lawn Drive and Barham Boulevard intersection to the western-most property line of the Forest Lawn Memorial Park Association property) and the Santa Monica Mountains provide an effective natural noise barrier and are expected to provide a minimum additional 10 dBA of attenuation versus distance alone. Therefore, this analysis only evaluates the noise resulting from construction haul truck trips along Forest Lawn Drive and not the construction related noise that would occur at the Project Site. Based on these factors, the on-site construction from the Project would not impact the Forest Lawn Memorial Park Association property.

The noise modeling was analyzed under peak construction haul truck trips along Forest Lawn Drive for the following construction conditions:

- Studio, Entertainment & Business (SEB) Area Construction - Only
- Universal Mixed-Use (UMU) Residential Construction - Only
- Composite (SEB & UMU) Construction
- Cumulative (SEB, UMU & Off-Site Projects) Construction

PROJECT IMPACTS

The NBC Universal Evolution Plan Draft EIR considers construction within the Mixed-Use Residential Area under two separate scenarios, whereas construction within the balance of the Project Site was analyzed in a single scenario. The haul routes evaluated in the Draft EIR were along Lankershim Boulevard, Forest Lawn Drive, and Buddy Holly Drive. This analysis considers the potential impacts to the Forest Lawn Memorial Park Association

[3] See NBC Universal Evolution Plan Draft EIR Volume 3, section IV.C.3.a.4

property resulting from construction haul truck trips along Forest Lawn Drive. As described in Section IV.B, Traffic/Access – Traffic/Circulation, of the Draft EIR, construction grading and associated haul truck trips will be limited to the hours of 7 a.m. to 7 p.m.[4] This analysis evaluated the scenarios under peak construction hauling conditions. In the first scenario, the "Studio, Entertainment and Business Areas", peak construction haul truck trips will generate 43 trips per hour. In the second scenario, the "Mixed-Use Residential Area", peak construction haul truck trips will generate 89 trips per hour. As stated in the Draft EIR, the maximum number of hourly haul truck trips on Forest Lawn Drive, due to the concurrent development of the two development areas, under the most conservative of assumptions (i.e., all haul truck trips on Forest Lawn Drive, peak Studio, Entertainment and Business areas hauling and Mixed-Use Residential Area hauling are occurring concurrently) is 132 trips per hour (43 trips and 89 trips, respectively).

It is also important to note, as discussed above, that the noise modeling presented in the following analyses incorporates the 15-foot tall sound barrier which would be required by Mitigation Measure C-4 in Section IV.C, Noise, of the Draft EIR if Project hauling would result in more than 78 haul trips per hour along Forest Lawn Drive. In terms of the three receptor locations analyzed in this report, the sound barrier would be located opposite location FL-2, but would not extend to be opposite or near locations FL-1 and FL-3. As a result, the noise environment at location FL-2 would also be affected by reflected noise from the sound barrier, a condition that would not occur at locations FL-1 or FL-3. For this reason, forecasted noise levels at location FL-2 are relatively higher than they are at locations FL-1 and FL-2 across the following analyses (see Tables 2 through 5).

A) Studio, Entertainment and Business Area Development

Table 2 presents the results of the modeling for hauling from the Studio, Entertainment and Business Area only. The greatest increase occurs at receptor location FL-2, with an increase of 2.2 dBA. As a result of the construction at the Studio, Entertainment and Business Area, hauling would have impacts that are not considered significant since the increases in noise levels are below the 5 dBA threshold.

Table 2 Construction Hauling - Studio, Entertainment, and Business Areas Maximum Flow Conditions (L_{eq})

Designated Descriptor	Existing Daytime (7 a.m. to 7 p.m.) Hourly Traffic Conditions L_{eq} (dBA)	Hauling along Forest Lawn Drive	
		Universal Studios Construction Scenario	Incremental Change Due to Construction Hauling
		L_{eq} (dBA)	L_{eq} (dBA)
FL-1	72.1	72.9	0.8
FL-2	72.1	74.3	2.2
FL-3	74.6	75.2	0.6

B) Mixed-Use Residential Development

Table 3 presents the results of the modeling for the hauling from the Mixed-Use Residential Area only. Based on the proposed development, more construction haul truck trips are anticipated for this scenario than for the Studio, Entertainment and Business Area development only. The modeling indicated that the greatest increase in noise levels occurs at FL-2 and is 3.9 dBA for construction haul truck trips. As a result of the construction haul truck -trips for the Mixed-Use Residential Area, the impacts are not considered significant since the increases in noise levels are below the 5 dBA threshold.

[4] See NBC Universal Evolution Plan Volume 2, section IV.B.I.3.d.4.b.i

Table 3 Construction Hauling –Mixed-Use Residential Area
Maximum Flow Conditions (L_{eq})

Designated Descriptor	Existing Daytime (7 a.m. to 7 p.m.) Hourly Traffic Conditions L_{eq} (dBA)	Hauling along Forest Lawn Drive	
		Mixed-Use Residential Construction Scenario	Incremental Change Due to Construction Hauling
		L_{eq} (dBA)	L_{eq} (dBA)
FL 1	72.1	73.3	1.2
FL 2	72.1	76.0	3.9
FL 3	74.6	76.0	1.4

C) Composite Construction of Project's Development

The Project has the potential to have concurrent construction between the Studio, Entertainment and Business Areas Development and the Mixed-Use Residential Development. It is possible that hauling from the two development areas could occur simultaneously. Therefore an analysis of the potential noise impact of concurrent construction haul truck trips from the two development areas was completed. In this particular scenario, the maximum construction hauling would be 132 trips per hour.

Table 4 presents the results of the modeling of composite noise for the case where the simultaneous hauling from the Studio, Entertainment and Business Areas and Mixed-Use Residential Area occurs. The greatest increase occurs at receptor location of FL-2, with an increase of 4.8 dBA. The increases on the other two receptor locations (FL-1 & FL-3) are less than 2 dBA increase. As a result of the composite construction hauling scenario, where the Studio, Entertainment and Business Areas and Mixed-Use Residential Area are simultaneously under construction, since the increases in noise levels are below the 5 dBA threshold, impacts related to construction hauling are less than significant.

Table 4 Composite of Studio, Entertainment, and Business Areas and Mixed-Use Residential Area Construction Hauling - Maximum Flow Conditions (L_{eq})

Designated Descriptor	Existing Daytime (7 a.m. to 7 p.m.) Hourly Traffic Conditions L_{eq} (dBA)	Hauling along Forest Lawn Drive	
		Universal Studios Construction Scenario	Incremental Change Due to Construction Hauling
		L_{eq} (dBA)	L_{eq} (dBA)
FL 1	72.1	73.5	1.4
FL 2	72.1	76.9	4.8
FL 3	74.6	76.5	1.9

CUMULATIVE IMPACTS

In addition to analyzing the impacts of the Project itself (Studio, Entertainment and Business Area and Universal Mixed-Use Residential Development Areas), the Draft EIR also considered the cumulative impacts from the Project with off-site related projects. This study has determined that there are two off-site related projects that have the potential to combine for cumulative impacts due to construction haul truck trips along Forest Lawn Drive thereby increasing noise levels at the Forest Lawn Memorial Park Association property. The two off-site related projects are the Oakwood Garden Apartments Expansion project and the Forest Lawn Memorial Park – Hollywood Hills Master Plan project.

At the time the NBC Universal Evolution Plan Draft EIR was being developed, the Oakwood Garden Apartment Expansion project was actively being pursued, but at the time this Supplemental Noise Study was being prepared there had been no formal applications or environmental analysis filed with the City of Los Angeles Department of City Planning. Although it appears that this particular off-site related project may no longer be active, this study has included the construction haul truck trips impacts from this off-site related project, which will provide a conservative estimate, for the cumulative analysis.

A) Off-site Related Projects – Construction Hauling Conditions

As stated above, the Oakwood Garden Apartments has no formal applications or analysis filed with the Department of City Planning and consequently there is no available data that states the forecasted earth removal requirements or the number of haul truck trips that would utilize Forest Lawn Drive. The study has assumed, in the absence of independent data, the Oakwood Garden Expansion project would require a maximum (peak) 20 construction haul trips per hour and that the haul route would occur along Forest Lawn Drive.

The other off-site related project is the Forest Lawn Memorial Park – Hollywood Hills Master Plan for which the City of Los Angeles Department of City Planning published a Draft EIR on February 10, 2011. Within that project's Draft EIR, the following conditions have been determined:

- The peak earth removal requirements will involve 38 construction hauling trips per hour;
- The westernmost entrance to the Forest Lawn Memorial Park Association property would not be utilized; and
- The Forest Lawn Memorial Park –- Hollywood Hills Master Plan construction hauling would originate at and increase noise levels at the site itself.

Based on the aforementioned information, cumulative construction hauling would generate 152 trips per hour at receptor location FL-1 (43 from Studio, Entertainment and Business Area Development; 89 from the Mixed-Use Residential Development; 20 from Oakwood Garden Expansion), as the construction hauling from the Forest Lawn Memorial Park – Hollywood Hills Master Plan would not pass by this receptor location. Receptor locations FL-2 & FL-3 would be passed by 190 trips per hour, with approximately 20 percent of those trips being generated by the Forest Lawn project itself. It is also important to note that under the cumulative analysis, Forest Lawn's own haul trucks would cross the Forest Lawn site itself before entering/exiting Forest Lawn Drive.

B) Off-site Related Projects - Analysis

The analysis conducted for the Project as described above has been replicated with regard to cumulative conditions as well. In the unlikely scenario that the Project (NBC Universal Evolution Plan) and the two off-site related projects are under concurrent development and are all in the earth removing stage, the noise increases from construction hauling may result in a significant impact to the Forest Lawn Memorial Park Association property utilizing the significance thresholds for a sensitive receptor. Table 5 presents the results of the modeling of the concurrent related projects. The increases in noise levels at receptor locations FL-1 & FL-3 are 1.5 dBA and 2.5 dBA, respectively, which are below the 5 dBA threshold; therefore, construction haul truck trip noise impacts would be less than significant at these locations. The greatest increase occurs at receptor location FL2, with an increase of 5.9 dBA.

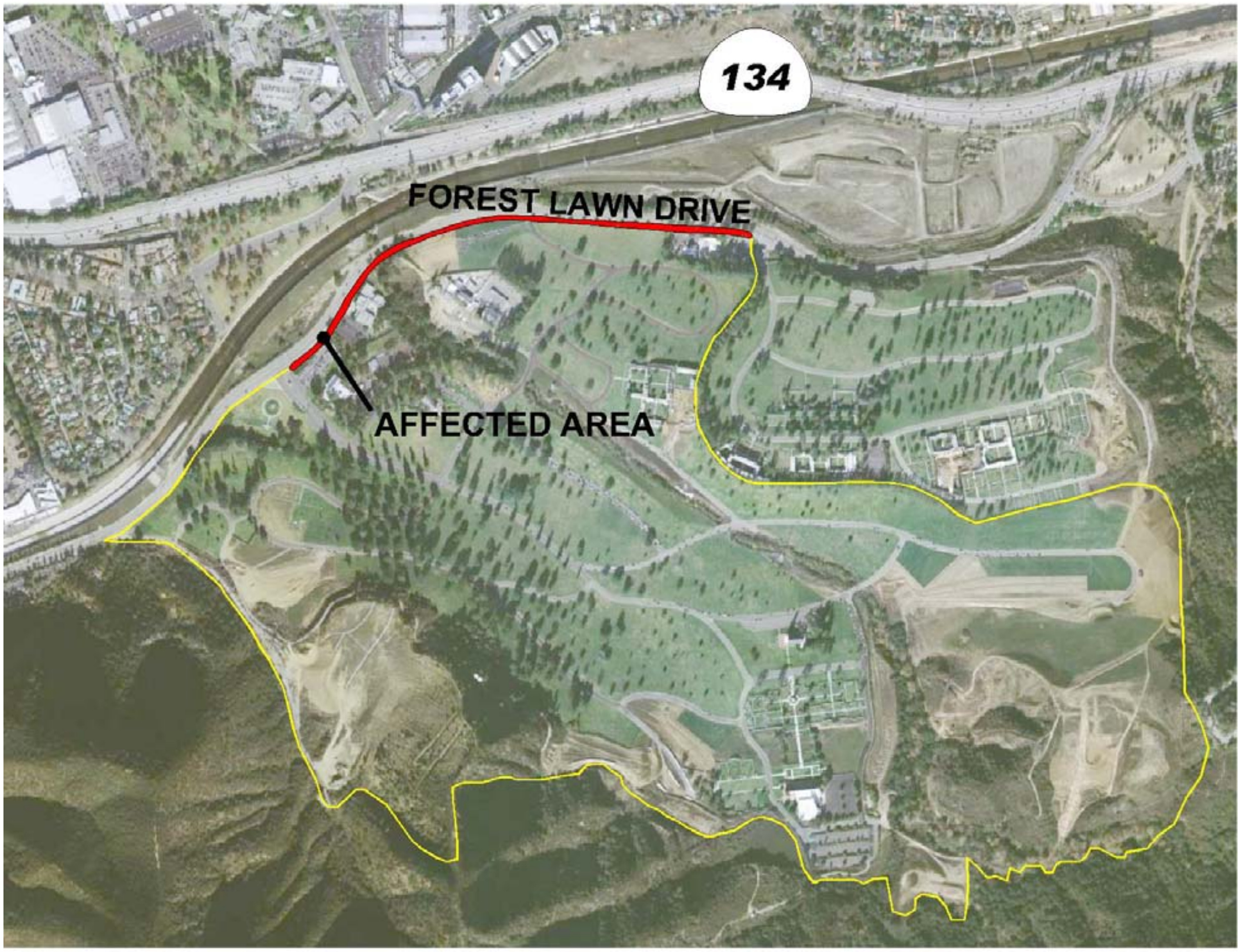
Table 5 Cumulative Construction Hauling
Maximum Flow Conditions, (L_{eq} – Equivalent Sound Level)

Designated Descriptor	Existing Daytime (7 a.m. to 7 p.m.) Hourly Traffic Conditions L_{eq} (dBA)	Hauling along Forest Lawn Drive	
		Universal Studios Construction Scenario	Incremental Change Due to Construction Hauling
		L_{eq} (dBA)	L_{eq} (dB)
FL 1	72.1	73.6	1.5
FL 2	72.1	78.0	5.9
FL 3	74.6	77.1	2.5

As a result of the cumulative construction hauling of the Project and the two specified related projects utilizing Forest Lawn Drive as a construction haul route, an increase that exceeds the 5 dBA threshold would occur and would be a significant impact if the *L.A. CEQA Thresholds Guide* defined the use as a noise sensitive use. It is important to note that such potential noise increases would only occur if hauling from the related projects along or adjacent to Forest Lawn Drive is concurrent with the Project's hauling, and if such concurrent hauling results in more than 141 haul trips per hour. Construction haul truck trips of less than 141 per hour along Forest Lawn Drive would yield a noise level increase of less than 5 dBA. When these trips numbers (141 per hour) are compared against the anticipated 190 trips per hour for the cumulative construction, the likelihood that a 5 dBA noise level increase would occur is small since all three projects (the NBC Universal Evolution Plan, Oakwood Garden Expansion and Forest Lawn Memorial Park - Hollywood Hills Master Plan) would require concurrent peak construction conditions. The probability for this scenario occurring is further reduced, as the Los Angeles Department of Transportation would likely seek to avoid such a condition through the implementation of each project's construction traffic plan.

Although the *L.A. CEQA Thresholds Guide* does not consider this location to be a noise sensitive use, since the projected noise level increase exceeds the 5 dBA threshold at FL-2 based on the anticipated cumulative construction hauling, the extent of the potential impact on the Forest Lawn Memorial Park Association property was further analyzed. Only a limited area would be impacted by a noise level increase of more than 5 dBA within the Forest Lawn Memorial Park Association property and would extend only 10 feet into the property (along Forest Lawn Drive between Memorial Drive and Mount Sinai Drive). This area is highlighted in red in Figure 1.

Figure 2. Noise Impact onto the Forest Lawn Memorial Cemetery



The area that would be potentially impacted by the cumulative construction hauling is immediately adjacent to the Forest Lawn Drive roadway, and the noise content of the cumulative construction hauling noise would be consistent with existing acoustic environment.

The cumulative construction hauling impacts on the Forest Lawn Memorial Park Association property are concluded to be less than significant for the following reasons: 1) this property is not a noise sensitive land use; 2) cumulative noise impacts would only exceed 5 dBA at this property if hourly haul trips exceed 141 trips, a condition that is not likely to occur as the peak haul period for the three projects would have to happen concurrently; and 3) only a limited portion of this property within 10 feet of Forest Lawn Drive would experience noise level increases of 5 dBA or greater and only during concurrent peak hauling. However, to provide further assurance noise from concurrent hauling of the Project and the two related projects will not impact activities at the Forest Lawn Memorial Park Association property, the following additional mitigation is recommended:

1) Prior to initiation of Project hauling along Forest Lawn Drive, the Applicant shall coordinate with the Los Angeles Department of Transportation to determine the number of haul truck trips scheduled to occur along Forest Lawn Drive at that time in connection with the Forest Lawn Memorial Park – Hollywood Hills Master Plan and the Oakwood Garden Apartments expansion.
2) The Applicant shall limit the Project's haul truck trips such that cumulative haul truck trips on Forest Lawn Drive from the Project, Forest Lawn Memorial Park – Hollywood Hills Master Plan, and the Oakwood Garden Apartments expansion does not exceed 140 haul truck trips per hour.

3) At such time as the haul truck trips from the Forest Lawn Memorial Park Master Plan and the Oakwood Garden Apartments expansion are reduced from the level established at the time Project hauling is initiated, the Los Angeles Department of Transportation may allow the Applicant to increase the Project's haul truck trips up to a cumulative total of 140 haul trips per hour.

The Draft EIR concluded that the cumulative noise increase due to construction hauling along Forest Lawn Drive could be as high as 6.9 dBA[5] within the Rancho Neighborhood, while this supplemental study has concluded a noise increase of 5.9 dBA at the FL-2 receptor location, but only if there is concurrent hauling among the proposed Project and the two off-site related projects identified above. The mitigation measure recommended above would assure that the noise levels from such concurrent hauling would be less than 5dBA.

Despite the relatively greater distance from Forest Lawn Drive-, 300 feet from the centerline of Forest Lawn Drive for the Rancho Neighborhood and 55 feet for the FL-2 location, the Rancho Neighborhood would experience a noise level increase that is somewhat similar to the increase at FL-2. This is because the ambient noise levels at the Rancho Neighborhood are much lower (51 dBA) than they are at FL-2 (72.1 dBA). Therefore, adding the new noise source has a greater effect on noise levels at the Rancho Neighborhood than at FL-2. Also, the noise increase at FL-2 also takes into account the reflection/attenuation of the sound barrier in Mitigation Measure C-4 within the Draft EIR.

CONCLUSIONS

The NBC Universal Evolution Plan Project has two development areas (Studio, Entertainment and Business Area and Universal Mixed-Use Residential Development Area) that would utilize Forest Lawn Drive for construction hauling. The forecasted earth removal where construction hauling would be required was analyzed during peak construction conditions. The analysis concluded that the noise impacts on the Forest Lawn Memorial Park Association property from construction hauling for the Studio, Entertainment and Business Areas and the Mixed-Use Residential Area would not be significant, since the increases would be below the 5 dBA threshold. The study considered the possibility of concurrent construction hauling from the two development areas from the Project. The analysis indicated that concurrent impacts would be less than significant as the increases above the ambient would be less than 5 dBA for the combined construction hauling conditions of both development areas.

The study considered the cumulative effects of the Project and two off-site related projects that would utilize the Forest Lawn Drive haul route and thereby potentially result in a cumulative impact to the Forest Lawn Memorial Park Association property. The analysis took a conservative approach as one of the off-site related projects considered was the Oakwood Garden Apartment Expansion, which has not submitted formal filings to the City of Los Angeles Department of City Planning and does not appear to be actively pursued at this time. For this particular off-site related project, the analysis anticipated the peak need for construction hauling at the rate of 20 trips per hour. The other off-site related project identified was the Forest Lawn Memorial Park – Hollywood Hills Master Plan, which according to the Draft EIR for that project published by the City of Los Angeles Department of City Planning in February 2011, would generate 38 haul trips per hour during peak conditions. The Draft EIR for the Forest Lawn Memorial Park – Hollywood Hills Master Plan stated that the westernmost entrance to the Forest Lawn Memorial Park Association property would not be utilized as an ingress/egress point for construction hauling. Thus, the analysis considered the maximum rate of 152 trips per hour at FL-1 (Evolution Plan developments and the Oakwood Garden Apartments Expansion) and 190 trips per hour at FL-2 & FL-3 (Evolution Plan developments, Oakwood Garden Apartments Expansion and the Forest Lawn Memorial Park – Hollywood Hills Master Plan). The analysis determined that cumulative noise levels at FL-2 receptor would increase by 5.9 dBA above the ambient noise level, which would exceed the 5 dBA threshold. However, the threshold would only be exceeded if cumulative construction hauling trips were to exceed 141 trips per hour. This number of cumulative trips would only be exceeded if all three projects engage in peak hauling at the same time. It is anticipated that the Los Angeles Department of Transportation would limit concurrent hauling through the implementation of each project's construction traffic management plan. Also, the analysis revealed that even if peak construction hauling from all three

[5] See NBC Universal Evolution Plan Draft EIR Volume 2, section IV.C, Table 73

projects were to occur concurrently , the impact on the Forest Lawn Memorial Park Association property would be limited to a depth of 10 feet within the property (along Forest Lawn Drive between Memorial Drive and Mount Sinai Drive). Although the Forest Lawn Memorial Park Association property is not identified as a noise sensitive use, by the *L.A. CEQA Thresholds Guide*, mitigation measures have been identified that would assure that the noise levels from concurrent hauling would be less than 5dBA.

Noise impacts on the Forest Lawn Memorial Park Association property, including construction noise from hauling and cumulative construction hauling, would be less than significant.

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APPENDIX

Noise Monitoring Equipment

Measurement Data

Noise Monitoring Equipment

Equipment	SERIAL NUMBER
Brüel &Kjaer 2260 Unit #5	
Brüel & Kjaer 2260 Observer	2433562
Brüel & Kjaer Pre-Polarized Microphone type 4189	2386137
Pre-Amplifier ZC 0026	2567
3-inch Wind Screen	--
Power Cord	--
10-foot Microphone Cable	--
Brüel & Kjaer Sound Analysis SoftWare BZ7219 V1.1	--
Brüel &Kjaer 2260 Unit #7	
Brüel & Kjaer 2260 Observer	2433564
Brüel & Kjaer Pre-Polarized Microphone type 4189	2589592
Pre-Amplifier ZC 0026	3709
2-inch Wind Screen	--
Power Cord	--
10-foot Microphone Cable	--
Brüel & Kjaer Sound Analysis SoftWare BZ7219 V1.1	--
Brüel &Kjaer 2260 Unit #9	
Brüel & Kjaer 2260 Observer	2433567
Brüel & Kjaer Pre-Polarized Microphone type 4189	2199589
Pre-Amplifier ZC 0026	2142
3-inch Wind Screen	--
Power Cord	--
10-foot Microphone Cable	--
Brüel & Kjaer Sound Analysis SoftWare BZ7219 V1.1	--
Brüel &Kjaer 2260 Unit #11	
Brüel & Kjaer 2260 Observer	2349999
Brüel & Kjaer Pre-Polarized Microphone type 4189	2440387
Pre-Amplifier ZC 0026	--
2-inch Wind Screen	--
Power Cord	--
10-foot Microphone Cable	--
Brüel & Kjaer Sound Analysis SoftWare BZ7219 V1.1	--

Measurement Data

	ID FL1 Forest Lawn 23-25 May, 2011								ID FL2 Forest Lawn 23-25 May, 2011							
Hour	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	L_{99}	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	L_{99}
0	66	84	45	78	69	54	48	46	65	82	46	76	69	56	52	49
1	64	86	44	77	65	51	46	45	63	82	43	75	65	54	50	46
2	64	93	44	77	66	52	47	45	63	88	45	76	65	54	49	46
3	61	83	43	74	60	48	46	45	61	83	44	73	61	53	49	46
4	63	82	45	75	65	52	48	47	64	84	48	77	65	56	52	50
5	68	87	49	78	73	60	53	50	70	93	53	81	74	62	57	55
6	72	85	48	80	76	67	57	51	73	91	58	82	78	68	61	59
7	74	91	50	82	78	73	62	53	76	89	58	83	80	74	63	60
8	75	88	50	82	78	73	62	55	76	90	58	83	80	74	65	60
9	73	87	49	81	77	71	60	53	75	93	57	82	79	72	62	59
10	72	88	48	80	76	69	58	51	73	88	57	81	77	70	62	59
11	72	94	48	81	76	69	59	52	72	96	55	81	76	69	60	57
12	72	86	47	81	77	68	57	50	72	93	55	80	76	69	59	57
13	72	86	48	81	77	69	55	50	73	86	54	81	76	70	61	57
14	73	90	48	81	77	69	56	51	72	89	54	81	76	70	59	57
15	73	89	49	81	77	69	56	51	73	88	54	81	77	70	59	56
16	74	92	47	82	78	71	58	51	74	87	54	81	78	72	60	56
17	75	95	49	82	79	73	62	52	75	94	51	82	79	73	63	56
18	75	86	49	82	79	74	64	52	75	85	52	82	78	73	64	56
19	74	94	51	82	78	70	60	54	73	88	56	81	77	71	61	58
20	72	92	52	81	76	67	57	54	71	88	56	79	75	67	60	58
21	71	87	48	80	75	65	56	52	70	87	55	79	75	66	59	56
22	71	85	50	80	76	65	55	52	70	86	55	79	74	65	58	57
23	69	95	48	79	73	61	52	50	68	89	52	78	72	62	56	54
CNEL	76								76							

Measurement Data

ID FL3 Forest Lawn
23-25 May, 2011

Hour	L_{eq}	L_{max}	L_{min}	L_1	L_{10}	L_{50}	L_{90}	L_{99}
0	67	89	47	79	70	57	53	50
1	65	87	45	79	65	54	51	48
2	66	93	45	79	66	55	50	47
3	63	87	45	76	61	55	51	48
4	66	85	48	79	66	57	53	50
5	72	94	52	83	76	63	58	55
6	75	92	57	84	80	68	61	59
7	78	91	58	85	82	75	64	60
8	78	97	58	85	82	76	66	62
9	77	94	56	84	81	73	63	59
10	75	90	56	83	80	71	62	58
11	75	93	55	83	79	71	62	58
12	75	97	54	83	79	72	62	57
13	75	89	54	83	79	72	61	57
14	75	88	54	83	79	72	61	57
15	75	88	52	83	79	71	60	56
16	76	89	53	84	81	74	63	56
17	77	95	51	84	81	75	64	57
18	77	88	53	84	81	75	65	58
19	76	92	51	84	80	72	62	56
20	73	94	55	82	78	67	60	57
21	72	88	54	82	77	66	59	56
22	72	88	55	82	77	65	59	57
23	70	90	52	81	74	62	57	54
CNEL	78							

Appendix FEIR-8

Freeway Health Risk Assessment—Vehicle Emissions

ENVIRON

April 2, 2012

via Electronic Mail (in PDF)

Mr. Bruce Lackow
Matrix Environmental
6701 Center Drive, Suite 900
Los Angeles, CA 90045

Re: Freeway Health Risk Assessment – Vehicle Emissions
NBCU Universal Evolution Plan
Los Angeles, California

Dear Mr. Lackow:

ENVIRON International Corporation (ENVIRON) has prepared a Health Risk Assessment (HRA) to evaluate potential cancer and non-cancer health impacts at locations within the proposed Mixed-Use Residential Area where residential development may occur within 500 feet of the US 101 Freeway. This analysis was prepared to support the analysis already provided in the Draft Environmental Impact Report (DEIR) for the proposed NBC Universal Evolution Plan in response to comments received on the DEIR.

This letter describes the scope of the HRA, which is based on the methodologies identified in the Sacramento Metropolitan Air Quality Management District's (SMAQMD) protocol[1] for evaluating health risk at receptors within 500 feet of major roadways. Due to the absence of formal guidance from the South Coast Air Quality Management District (SCAQMD), ENVIRON has relied upon the SMAQMD protocol. This letter outlines the methods used for completing the emissions estimation, air dispersion modeling, and risk evaluation, and presents the results and conclusions for this assessment.

Project Description

The proposed Mixed-Use Residential Area is part of the proposed NBC Universal Evolution Plan (the Project). The Project would include the development of new studio, studio office, office, entertainment, entertainment retail, and hotel uses. In addition, the Project would include residential dwelling units and neighborhood retail/commercial uses, and community serving uses (*e.g.*, community center). To accommodate the proposed development, some existing studio, office, and entertainment uses would be demolished. The proposed Mixed-Use Residential Area aspect of the Project primarily consists of residential dwelling units and neighborhood retail and community serving uses.

Introduction

The 2005 publication of the California Air Resources Board's (CARB) guidance manual on land use development, *Air Quality and Land Use: A Community Perspective* (the "CARB Handbook"), is intended to serve as a general reference guide for evaluating and reducing air pollution impacts associated with new projects that go through the land use decision-making process.[2]

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[1] SMAQMD. 2009. Recommended Protocol for Evaluating the Location of Sensitive Land Uses Adjacent to Major Roadways. January.

[2] California Air Resources Board (CARB). 2005. Air Quality and Land Use Handbook – A Community Health Perspective, Available

Recommendations provided by CARB are voluntary and do not constitute a requirement or mandate for either land use agencies or local air districts. Some examples of CARB's recommendations include avoiding siting sensitive receptors within: (a) 500 feet of a freeway, urban road with 100,000 vehicles per day, or rural roads with 50,000 vehicles per day; (b) 1,000 feet of a transport distribution center; and (c) 300 feet of any dry cleaning operation using perchloroethylene or within 500 feet of a dry cleaning operation with two or more machines. According to CARB, California freeway studies show an approximately 70 percent drop off in particulate pollution levels at 500 feet, and lifetime cancer risk from exposure to diesel particulate matter (DPM) is expected to be lowered proportionately at that distance.

The US-101 freeway is located within 500 feet of a small section of the proposed Mixed-Use Residential Area where potential residential development may occur. The US-101 freeway is located to the south of and at a lower elevation than the proposed Mixed-Use Residential Area and is an urban high-traffic road. CARB defines urban high-traffic roads and rural high-traffic roads to have 100,000 vehicles/day and 50,000 vehicles/day, respectively. Figure 1 illustrates the location of US-101 relative to the proposed Mixed-Use Residential Area.

Regulatory Context

SCAQMD currently has not published guidelines or a protocol for evaluating cancer risk/ non-cancer impacts due to major roadways within 500 feet. Since the SMAQMD provides a protocol for evaluating health risk at receptors within 500 feet of major roadways, we relied upon the SMAQMD protocol as a basis for this HRA. The SMAQMD protocol suggests that a project should demonstrate an equivalent reduction in risk as would be achieved by moving sensitive receptors outside of the 500 foot area.[3]

While there is no regulatory requirement to compare this health risk assessment to SCAQMD's air quality California Environmental Quality Act (CEQA) significance thresholds for Toxic Air Contaminants (TACs), we have included them for comparison purposes only. The TACs CEQA significance thresholds are an incremental cancer risk that is in excess of 10 in a million and a non-cancer hazard index (HI) (chronic and acute HI) greater than 1.[4]

Existing Conditions

The DEIR for the Project includes discussion of the existing health risks in the Southern California air basin, which are located in the air quality sections and supporting technical report. A short summary is provided here for context.

SCAQMD has conducted several phases of the Multiple Air Toxics Exposure Study (MATES) to characterize health risks potentially posed by TACs in the Southern California Air Basin (SOCAB). The first such study (MATES-I) was conducted in 1987. During 1998-1999, MATES-II was conducted as part of the Environmental Justice Initiatives adopted by SCAQMD's Governing Board in October 1997. MATES-II was a landmark urban air toxics monitoring and evaluation study that included a comprehensive monitoring program, compilation of an updated TAC emissions inventory, and urban and local scale air quality modeling to characterize SOCAB risk.[5]

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at: http://www.arb.ca.gov/ch/handbook.pdf. 2005, April.

3 SMAQMD. 2009. Recommended Protocol for Evaluating the Location of Sensitive Land Uses Adjacent to Major Roadways. January.

4 SCAQMD, 2011. Available at: http://www.aqmd.gov/ceqa/handbook/signthres.pdf. Accessed: June, 2011. March.

5 SCAQMD. 2000. "Multiple Air Toxics Exposure Study (MATES-II)." Final Report. South Coast Air Quality Management District, Diamond Bar, California. March.

During 2004-2006, SCAQMD conducted the MATES-III study. In September 2008, SCAQMD released a Final MATES-III report[6] for public comment (see www.aqmd.gov/prdas/matesIII/matesIII.html). Data were collected every three days from April 2004 through March 2006 at a number of monitoring locations, including Burbank. Based on these data, SCAQMD estimated that basin wide cancer risk was about 1,200 in a million, with TACs from mobile sources accounting for 94% of this risk on average. At Burbank, SCAQMD calculated TAC cancer risk to be about 1,300 in a million, about 1,100 in a million is attributable to diesel PM emissions.

CARB has developed inhalation cancer risk maps that characterize existing health risks across the state for the year 2001.[7] Maps were generated using ambient air toxics concentrations modeled using the United States Environmental Protection Agency's (USEPA's) Assessment System for Population Exposure Nationwide (ASPEN), and are presented by CARB at a resolution of 1 kilometer by 1 kilometer. The CARB maps show that the total inhalation cancer risk in the immediate vicinity of the proposed Mixed-Use Residential Area was between 500 and 750 in a million in 2001, and of that total inhalation cancer risk, emissions of diesel PM from on-road mobile sources accounted for a risk of between 250 and 500 in a million.

Emissions Calculation Methodology

Traffic and Fleet Mix

Information on traffic counts along the roadways was obtained from the traffic consultant.[8] The fractions of diesel and gasoline fueled vehicles, shown in Table 1, were estimated by using the ratio of VMT from the respective vehicle fuel types to the total vehicle miles traveled from EMFAC2007 for year 2030.

Emission Factors

Emission factors are calculated for DPM, total organic gases from diesel exhaust, and TOG from gasoline exhaust and evaporation using EMFAC2007.[9] Emission factors from EMFAC2007 for TOG, and DPM, for each of the 13 vehicle classes were weighted by the fraction of vehicle miles traveled of each class for each hour for the relevant fuel type to obtain the hourly emission factor. Hourly emission factors for each speed are shown in Table 2. After modeling, the concentrations of total organic gases were speciated using ARB's speciation profiles for gasoline and USEPA's speciation profile for diesel as shown in Table 3.

This assessment evaluated residents living in the Mixed Use Residential Area from Project build-out, 2030, to 2100, given a 70-yr exposure assumption. To simplify the analysis, ENVIRON assumed that future forecasted traffic volumes and vehicular emission factors are represented by those values for 2030. Although traffic volumes are forecast to increase with time due to growth, vehicular emission factors are expected to decrease with time due to California's statewide regulation to increase fuel efficiency (Assembly Bill (AB) 1493, the Pavley I standard) and other State and Federal regulations aimed at emissions reduction.

Project Design Features

The following Project Design Features were incorporated into the Draft EIR, as discussed on page 1,522:

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6 SCAQMD. 2008. "Multiple Air Toxics Exposure Study in the South Coast Air Basin (MATES-III)." Draft Report. South Coast Air Quality Management District, Diamond Bar, California. January.

7 CARB, 2010. Available at: http://www.arb.ca.gov/ch/communities/hlthrisk/hlthrisk.htm. Accessed: June 2011.

8 Raju & Associates, August 2007.

9 Available at: http://www.arb.ca.gov/msei/onroad/latest_version.htm, Accessed June, 2011.

- **Project Design Feature H-4:** In conjunction with development within Planning Subareas 6-9, the Applicant or its successor shall install tiered vegetative landscaping between the US 101 Freeway and any Project residential unit located within 500 feet of the US 101 Freeway.
- **Project Design Feature H-5**: In conjunction with development within Planning Subareas 6-9, the Applicant or its successor shall install an air filtration system on any Heating, Ventilation and Air Conditioning system within any Project residential unit located within 500 feet of the US 101 Freeway. The air filtration system shall achieve a reduction of at least 70 percent of the particulate matter from freeway emissions.

Studies have shown that vegetative landscaping can reduce particulate emissions by up to 65 to 85 percent at lower wind speeds, with greater removal rates expected for ultra-fine particles < 0.1 μm in diameter.[10] Based on the published literature, ENVIRON estimated that the annual average PM reduction due to vegetative landscaping would be 49% based on the hourly wind speed measured at the Burbank meteorological station and a linear interpolation based on the studies' findings.[11] Accordingly for this analysis, the overall reduction in PM is a weighted average of these values.

Fisk et al., who conducted a study of the performance and costs of particulate air filtration technologies, showed that ASHRAE Dust Spot 85% (MERV 13) filters provide an 80% or greater reduction of outdoor fine particulate matter (such as DPM) if the ventilation systems is operated with one air exchange per hour of outside air and four air exchanges per hour of recirculated air.[12] For this analysis, ENVIRON conservatively assumed an 80% PM reduction for the air filters because substantive evidence supports that MERV 13 filters can provide an 80% or greater reduction of outdoor fine particulate matter.

The following changes to Project Design Features H-4 and H-5 will be made in the Final EIR and these changes are incorporated into this analysis:

- **Project Design Feature H-4**:In conjunction with development within Planning Subareas 6-9, the Applicant or its successor shall install tiered vegetative landscaping<u>, which shall include trees with finely needled leaves,</u> between US 101 Freeway and any residential unit located within 500 feet of US 101 Freeway<u> on the Project Site</u>. <u>The tiered vegetation shall be maintained as part of the residential community landscaping areas.</u>
- **Project Design Feature H-5**:In conjunction with development within Planning Subareas 6-9, the Applicant or its successor shall install an air filtration system on any Heating, Ventilation and Air Conditioning (HVAC) system within any residential unit located within 500 feet of US 101 Freeway<u> on the Project Site</u>. The air filtration system shall achieve a reduction of at least <u>80</u> percent of the freeway particulate matter emissions, <u>such as can be achieved with a Minimum Efficiency Reporting Value 13 ("MERV-13") air filtration system</u>. <u>For rental units within 500 feet of the US 101 Freeway on the Project site, the owner/property manager shall maintain the air filtration system on any HVAC in accordance with the manufacturer's recommendations. For residential owned units within 500 feet of US 101 Freeway on the Project Site, the homeowner's association</u>

[10] Fujii, Erin et al., Removal Rates of Particulate Matter onto Vegetation as a Function of Particle Size, Final Report to Breathe California of Sacramento-Emigrant Trails Health Effects Task Force (HETF) and Sacramento Metropolitan AQMD, *April 30, 2008, available at http://www.sacbreathe.org/Local%20Studies/Vegetation%20Study.pdf.*

[11] This calculation was based on the Fujii et al. study findings, specifically the results for redwood vegetation (page 3 of the Fujii et al. study), a tree with finely needled leaves. *See also* SMAQMD. 2009. Recommended Protocol for Evaluating the Location of Sensitive Land Uses Adjacent to Major Roadways. January.

[12] Fisk, W.J., D. Faulkner, J. Palonen, and O. Seppanen. 2002. Performance and costs of particle air filtration technologies. *Indoor Air.* 12: 223-234.

(HOA) shall incorporate requirements for long-term maintenance of the air filtration system on any HVAC in the HOA's Covenant, Conditions, and Restrictions.

Air Dispersion Modeling Methodology

The HRA methodology followed that as described in the SMAQMD protocol.[13] In accordance with the protocol, we used CAL3QHCR, USEPA's preferred model for determining air pollution concentrations downwind from traffic sources.

Model Options

CAL3QHCR incorporates hourly emission factors and traffic volumes with a full year of hourly meteorological data to estimate air concentrations for pollutants such as particulate matter and gaseous contaminants. The model can calculate concentrations from the free flow movement of traffic along a roadway and the queue of traffic at a traffic signal. For this analysis, only free flow exhaust emissions from US-101 were evaluated, consistent with SMAQMD guidance.

Sources (Segment/Link)

The links, or roadway segments, used in the model were created using an aerial map of the area. This HRA evaluates segments of US-101 within 500 feet of the proposed Mixed-Use Residential Area as shown in the Figure 2. Consistent with guidance in the CAL3QHCR user's guide,[14] each freeflow link represents a straight segment and constant emission factor and traffic volume along each link. The average elevation of each link was found using the National Elevation Dataset from the United States Geological Survey (USGS).[15] The width of the roadway was calculated by obtaining the number of lanes and assuming 12 feet per lane. The width used in the freeflow model is the width of the road plus 10 feet on each side to account for the turbulent mixing of the air behind the moving vehicles, consistent with the CAL3QHCR user's guide. Roadway geometries are presented in Table 4.

Receptors

The modeled receptor locations are presented in Figure 3. ENVIRON modeled potential residential receptors in the proposed Mixed-Use Residential Area within 500 feet from the freeway per CARB's land use handbook and SMAQMD recommendations. The modeled receptors were covered by fifty-meter spacing grid receptors and with a 1.5 meter receptor height.

Meteorological Data

To characterize the transport and dispersion of pollutants in the atmosphere, CAL3QHCR requires hourly meteorological data in the same format as the data required by the Industrial Source Complex Short Term Model (ISCST3), another USEPA air dispersion model. This analysis used SCAMQD's 1981 surface meteorological data inputs for the Burbank station.

In addition, surface roughness data describing land use and surface characteristics were estimated to characterize vertical dispersion following the Guideline on Air Quality Models.[16] A surface roughness of 44 centimeters (cm) was estimated based on the USGS NLCD92 Land

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[13] SMAQMD. 2009. Recommended Protocol for Evaluating the Location of Sensitive Land Uses Adjacent to Major Roadways. January.
[14] Available at: http://www.epa.gov/scram001/dispersion_prefrec.htm, Accessed June, 2011.
[15] Available at: http://seamless.usgs.gov/website/seamless/viewer.htm, Accessed June, 2011.
[16] USEPA. 2005. Guideline on Air Quality Models (Revised). 40 Code of Federal Regulations, Part 51, Appendix W. Office of Air Quality Planning and Standards. November.

Cover Categories presented in the AERSURFACE User's Guide.[17] The urban setting was used consistent with the recommendations by SCAQMD.[18]

Risk Characterization

Estimation of Cancer Risks

The following equation was used to calculate excess lifetime cancer risk:

$$\text{Cancer Risk} = Ci \times DBR \times AFann \times EF \times ED \times CPF / AT$$

Where:

$Risk_i$	=	Lifetime Excess Cancer Risk from exposure to chemical (in a million)$_i$
C_i	=	Annual Average Air Concentration for chemical$_i$ ($\mu g/m^3$)
DBR	=	Daily Breathing Rate (L/kg body weight-day or L/kg-day)
AFann	=	Annual Concentration Adjustment Factor
EF	=	Exposure Frequency (day/yr)
ED	=	Exposure Duration (yr)
AT	=	Averaging Time (day)
CPF_i	=	Cancer Potency Factor for chemical$_i$ $(mg/kg/day)^{-1}$

Carcinogenic risks are estimated as the incremental probability that an individual will develop cancer over a 70-year lifetime as a direct result of exposure to potential carcinogens.[19] The estimated risk is expressed as a unitless probability.

Exposure Assessment

Potentially exposed populations evaluated in this analysis are the potential residents within the proposed Mixed-Use Residential Area.

Exposure Pathways

Primary and secondary exposure pathways include inhalation, non-inhalation primary, and non-inhalation secondary exposure pathways. The primary non-inhalation pathways include dermal exposure, water ingestion, crop ingestion (direct deposition), and soil ingestion. The secondary non-inhalation pathways include ingestion of mother's milk, fish, dairy products, all types of meat and eggs, and crop ingestion (root uptake). All of these exposure pathways are conservatively included and evaluated using multi-pathway factors per SCAQMD health risk assessment guidance.[20]

Exposure Assumptions

This assessment employs standard residential exposure assumptions. Further details regarding the residential exposure assumptions and exposure pathway assumptions can be found in Table 5.

Chemicals of Potential Concern and Toxicities

In this HRA, the chemicals of potential concern were identified in accordance with an indicator chemical approach that is consistent with Office of Environmental Health Hazard Assessment (OEHHA) guidance.[21] Diesel exhaust, a complex mixture that includes hundreds of individual

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[17] Available at: http://www.epa.gov/scram001/7thconf/aermod/aersurface_userguide.pdf. Accessed June, 2011.
[18] Available at: www.aqmd.gov/prdas/pdf/riskassessmentprocedures-v7.pdf, Accessed June, 2011.
[19] Cal/EPA. 2003. Air Toxics Hot Spots Program Risk Assessment Guidelines. August.
[20] SCAQMD. 2005. Risk Assessment Procedures for Rules 1401 and 212. Version 7.0. July 2005.
[21] Cal/EPA. 2003. The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments. Office of Environmental Health Hazard Assessment. August.

constituents, is identified by the State of California as a known carcinogen. Under California regulatory guidelines, DPM is used as a surrogate measure of carcinogen exposure for the mixture of chemicals that make up diesel exhaust as a whole. There is currently no acute non-cancer toxicity value available for DPM. Thus, speciated components of diesel total organic gases (TOGs) with acute toxicity values were included in the acute non-cancer hazard analysis. For gasoline vehicles, exhaust and evaporative TOGs from gasoline-fueled vehicles were evaluated based on the organic chemical speciation profiles from ARB.[22] The speciation profiles are presented in Table 3 and associated toxicity values for the chemicals evaluated in this analysis are summarized in Table 6.[23]

Estimation of Chronic and Acute Noncancer Hazard Quotients/Indices

The potential for exposure to result in adverse chronic noncancer effects is evaluated by comparing the estimated annual average air concentration (which is equivalent to the average daily air concentration) to the noncancer chronic reference exposure level (cREL) for each chemical. When calculated for a single chemical, the comparison yields a ratio termed a hazard quotient (HQ). To evaluate the potential for adverse chronic noncancer health effects from simultaneous exposure to multiple chemicals, the HQs for all chemicals are summed, yielding a HI.

$$HQ_i = C_i / cREL_i$$
$$HI = \sum HQ_i$$

Where:

HQ_i	=	Chronic hazard quotient for chemical$_i$
HI	=	Hazard index
C_i	=	Annual average concentration of chemical$_i$ (µg/m^3)
$cREL_i$	=	Chronic noncancer reference exposure level for chemical$_i$ (µg/m^3)

The potential for exposure to result in adverse acute effects is evaluated by comparing the estimated one-hour maximum air concentration of chemical to the acute reference exposure level (aREL) for each chemical evaluated in this analysis. When calculated for a single chemical, the comparison yields an HQ. To evaluate the potential for adverse acute health effects from simultaneous exposure to multiple chemicals, the HQs for all chemicals are summed, yielding a HI.

$$HQ_i = C_i / aREL_i$$
$$HI = \sum HQ_i$$

Where:

HQ_i	=	Acute hazard quotient for chemical$_i$
HI	=	Hazard index
C_i	=	One-hour maximum concentration of chemical$_i$ (µg/m^3)
$aREL_i$	=	Acute reference exposure level for chemical$_i$ (µg/m^3)

[22] Used speciation profile 2111 for gasoline TOG exhaust and profile 422 for gasoline TOG evaporative emissions. The speciation profile is available for download at: http://www.arb.ca.gov/ei/speciate/dnldopt.htm#specprof, Accessed June, 2011.

[23] SCAQMD, 2010. Permit Application for Package "L"[23], For Use in Conjunction with the Risk Assessment Procedures for Rules 1401 and 212 Version 7.0, Available at: http://www.aqmd.gov/prdas/pdf/1401AttL2Sep2010.pdf, Accessed June, 2011.

Results

Modeled Air Concentrations

The maximum modeled annual concentration for DPM, hourly concentration for diesel exhaust TOG, and annual and hourly concentrations for gasoline exhaust TOG and gasoline non-exhaust TOG are presented in Table 7. The annual and hourly concentrations were used to calculate the cancer risk and noncancer hazard indices, respectively. The location of the maximum exposed individual is shown in Figure 1.

Cancer and Non-Cancer Health Effects

The estimated cancer and non-cancer health impacts results of this analysis at locations where expected residential development may occur in the proposed Mixed-Use Residential Area within 500 feet of the US 101 Freeway are shown in Table 8. The project design features achieve the 70% reduction as suggested by the CARB Land Use Guidelines and by the SMAQMD guidance for siting sensitive receptors within 500 feet of a freeway. In addition, for informational purposes only, the maximum estimated excess lifetime cancer risks, noncancer chronic hazard index, and noncancer acute hazard index with the project design features at these locations were 9.2 in a million, 0.06, and 0.01 respectively, which are all below the SCAQMD significant thresholds.

This risk analysis includes the use of conservative exposure assumptions that likely overestimate actual exposure and risk. These assumptions include that exposure occurs continuously at outdoor concentrations 24-hours per day, 7 days per week, for an entire 70 year lifetime. People move periodically instead of living 70 years at the same location and are typically away from the vicinity of their residences during the day for work, shopping, school, or other purposes (instead of remaining at their residence all of the time). As a result, reported risks are upper-bound estimates, and actual risks will likely be lower than reported.

Conclusion

In summary, this HRA demonstrates the Project's consistency with the CARB Land Use Guidelines. Furthermore, although there are not specific SCAQMD CEQA significance thresholds for the context of this analysis, this HRA shows that the estimated cancer risk and non-cancer HI at locations where expected residential development may occur in the proposed Mixed-Use Residential Area within 500 feet of the US-101 Freeway are below the SCAQMD's TAC significance thresholds. This analysis is based on the best available information at the time this analysis was conducted. To the extent that information relied upon changes, the results reported here may also change.

Regards,

Eric C. Lu, MS, PE
Senior Manager

Stan Hayes
Principal

EL:co
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Enclosures: Tables,
Figures
Attachments

Tables

Table 1
Daily Vehicle Distribution
Evolution Plan
Universal City, California

Hour	Fraction of Vehicle[1]	
	Diesel	Gasoline
1	0.19	0.80
2	0.31	0.68
3	0.32	0.68
4	0.59	0.40
5	0.24	0.75
6	0.20	0.79
7	0.09	0.90
8	0.03	0.95
9	0.05	0.94
10	0.09	0.90
11	0.07	0.91
12	0.06	0.92
13	0.05	0.93
14	0.06	0.93
15	0.04	0.95
16	0.03	0.96
17	0.04	0.95
18	0.02	0.97
19	0.02	0.96
20	0.01	0.97
21	0.05	0.93
22	0.07	0.92
23	0.05	0.93
24	0.03	0.96

Notes:
1. Based on the fraction of Vehicle-Mile-Traveled (VMT) from the respective fuels to the total VMT for each hour from EMFAC2007 for year 2030.

Table 2
Summary of Emission Factors
Evolution Plan
Universal City, California

Hour	Emission Factors (g/mile)[1]																			
	Barham Blvd to Highland Ave Northbound					Campo De Cahuenga to Barham blvd Northbound					Campo De Cahuenga to Barham blvd Southbound					Barham Blvd to Highland Ave Southbound				
	Speed (mph)[1]	DPM Exhaust	TOG Diesel Exhaust	TOG Gasoline Exhaust	TOG Gasoline Evaporative	Speed (mph)	DPM Exhaust	TOG Diesel Exhaust	TOG Gasoline Exhaust	TOG Gasoline Evaporative	Speed (mph)	DPM Exhaust	TOG Diesel Exhaust	TOG Gasoline Exhaust	TOG Gasoline Evaporative	Speed (mph)	DPM Exhaust	TOG Diesel Exhaust	TOG Gasoline Exhaust	TOG Gasoline Evaporative
1	65	0.12	0.14	0.05	0.03	65	0.12	0.14	0.05	0.03	65	0.12	0.14	0.05	0.03	65	0.12	0.14	0.05	0.03
2	65	0.08	0.11	0.05	0.03	65	0.08	0.11	0.05	0.03	65	0.08	0.11	0.05	0.03	65	0.08	0.11	0.05	0.03
3	65	0.10	0.13	0.04	0.03	65	0.10	0.13	0.04	0.03	65	0.10	0.13	0.04	0.03	65	0.10	0.13	0.04	0.03
4	65	0.17	0.19	0.04	0.03	65	0.17	0.19	0.04	0.03	65	0.17	0.19	0.04	0.03	65	0.17	0.19	0.04	0.03
5	65	0.15	0.18	0.04	0.03	65	0.15	0.18	0.04	0.03	65	0.15	0.18	0.04	0.03	65	0.15	0.18	0.04	0.03
6	65	0.16	0.18	0.04	0.03	65	0.16	0.18	0.04	0.03	45	0.10	0.22	0.03	0.04	35	0.09	0.28	0.03	0.05
7	60	0.14	0.17	0.04	0.03	60	0.14	0.17	0.04	0.03	20	0.13	0.40	0.06	0.08	10	0.16	1.28	0.11	0.16
8	50	0.11	0.20	0.03	0.03	50	0.11	0.20	0.03	0.03	30	0.10	0.31	0.04	0.05	15	0.14	0.68	0.08	0.11
9	55	0.10	0.15	0.03	0.03	50	0.10	0.16	0.03	0.03	30	0.10	0.25	0.04	0.06	20	0.13	0.33	0.06	0.08
10	55	0.10	0.14	0.03	0.03	55	0.10	0.14	0.03	0.03	30	0.10	0.24	0.04	0.06	20	0.12	0.32	0.06	0.08
11	55	0.10	0.15	0.03	0.03	55	0.10	0.15	0.03	0.03	30	0.09	0.26	0.04	0.06	20	0.11	0.35	0.06	0.08
12	55	0.10	0.15	0.03	0.03	55	0.10	0.15	0.03	0.03	40	0.09	0.19	0.03	0.04	25	0.10	0.29	0.04	0.07
13	55	0.10	0.15	0.03	0.03	50	0.10	0.16	0.03	0.03	45	0.09	0.17	0.03	0.04	40	0.09	0.19	0.03	0.04
14	50	0.10	0.16	0.03	0.03	50	0.10	0.16	0.03	0.03	55	0.10	0.15	0.03	0.03	55	0.10	0.15	0.03	0.03
15	50	0.10	0.16	0.03	0.03	40	0.09	0.19	0.03	0.04	50	0.10	0.16	0.03	0.03	40	0.09	0.19	0.03	0.04
16	40	0.10	0.19	0.03	0.04	30	0.11	0.25	0.04	0.06	40	0.10	0.19	0.03	0.04	30	0.11	0.25	0.04	0.06
17	35	0.11	0.21	0.03	0.05	25	0.13	0.28	0.04	0.07	40	0.10	0.18	0.03	0.04	25	0.13	0.28	0.04	0.07
18	30	0.10	0.22	0.04	0.06	20	0.13	0.31	0.06	0.08	40	0.09	0.17	0.03	0.04	25	0.12	0.26	0.04	0.07
19	35	0.08	0.24	0.03	0.05	25	0.08	0.32	0.04	0.07	40	0.08	0.21	0.03	0.04	30	0.08	0.28	0.04	0.06
20	40	0.08	0.23	0.03	0.04	40	0.08	0.23	0.03	0.04	50	0.09	0.19	0.03	0.03	45	0.09	0.21	0.03	0.04
21	55	0.10	0.16	0.03	0.03	50	0.09	0.17	0.03	0.03	55	0.10	0.16	0.03	0.03	55	0.10	0.16	0.03	0.03
22	55	0.10	0.14	0.03	0.03	55	0.10	0.14	0.03	0.03	65	0.12	0.14	0.05	0.03	65	0.12	0.14	0.05	0.03
23	55	0.08	0.12	0.03	0.03	55	0.08	0.12	0.03	0.03	65	0.10	0.12	0.05	0.03	65	0.10	0.12	0.05	0.03
24	65	0.14	0.18	0.05	0.03	65	0.14	0.18	0.05	0.03	65	0.14	0.18	0.05	0.03	65	0.14	0.18	0.05	0.03

Notes:
1. Based on the results from Emission factor (EMFAC) 2007 model, which was run at an increment of 5 miles ranging from 5 mph to 65 mph.

Table 3
Speciation Profile for Mobile Emissions
Evolution Plan
Universal City, California

Profile Number[1]	Modeled Pollutant[2]	Chemical[3]	Quantity (wt fraction)
4674	TOG Diesel Exhaust	Acrolein	0.012970
		Benzene	0.010450
		Formaldehyde	0.085050
		Acetaldehyde	0.159420
2120	TOG Gasoline Exhaust	1,3-Butadiene	0.004618
		Acrolein	0.001122
		Formaldehyde	0.013375
		Benzene	0.020936
		Acetaldehyde	0.002364
422	TOG Gasoline Evaporative	1,3-Butadiene	0.000069
		Benzene	0.008378
428	Diesel Exhaust	Diesel PM	1

Notes:

1. TOG Diesel Exhaust are based on EPA's profile, while the other modeled pollutants are based on CARB's profiles.
2. Unspeciated pollutants that were modeled.
3. Only chemicals from Chemicals of Potential Concern (COPC) were modeled.

Table 4
Summary of Traffic Source Geometries
Evolution Plan
Universal City, California

Segment[1]	Description	Start		End	
		X	Y	X	Y
A	Highland to Barham	376047	3776911	375971	3777044
A	Highland to Barham	375971	3777044	375801	3777259
B	Barham to Campo	375801	3777259	375674	3777409
B	Barham to Campo	375674	3777409	375550	3777560
B	Barham to Campo	375550	3777560	375455	3777664
B	Barham to Campo	375455	3777664	375345	3777743
B	Barham to Campo	375345	3777743	375233	3777792
B	Barham to Campo	375233	3777792	374980	3777867
C	Campo to Barham	374975	3777837	375287	3777738
C	Campo to Barham	375287	3777738	375387	3777685
C	Campo to Barham	375387	3777685	375483	3777603
C	Campo to Barham	375483	3777603	375786	3777241
D	Barham to Highland	375786	3777241	375946	3777042
D	Barham to Highland	375946	3777042	376027	3776900

Notes:

1. Segment is composed of links and therefore, there could be more than one link for each segment.

Table 5
Exposure Parameters
Evolution Plan
Universal City, California

Population	Receptor Type	Daily Breathing Rate (L/kg-day)	Exposure Frequency (day/yr)	Exposure Duration (yr)	Averaging Time (day)[1]
Resident	Adult	302	350	70	25,550

1. Averaging Time is equal to 365 days/yr x 70 yr.

Table 6
Carcinogenic and Noncarcinogenic Toxicity Values[1]
Evolution Plan
Universal City, California

Chemical	CAS #	Cancer Potency Factor $(mg/kg/day)^{-1}$	Chronic Reference Exposure Level $(\mu g/m^3)$	Acute Reference Exposure Level $(\mu g/m^3)$
Diesel PM	9901	1.1	5	-
Acetaldehyde	75-07-0	0.01	140	470
Acrolein	107-02-8	-	0.35	2.5
Benzene	71-43-2	0.1	60	1300
1,3-Butadiene	106-99-0	0.6	20	-
Formaldehyde	50-00-0	0.021	9	55

1. SCAQMD Permit Application for Package "L", For Use in Conjunction with the Risk Assessment Procedures for Rules 1401 and 212 Version 7.0, 2010, Available at: http://www.aqmd.gov/prdas/pdf/1401AttL2Sep2010.pdf, Accessed June, 2011.

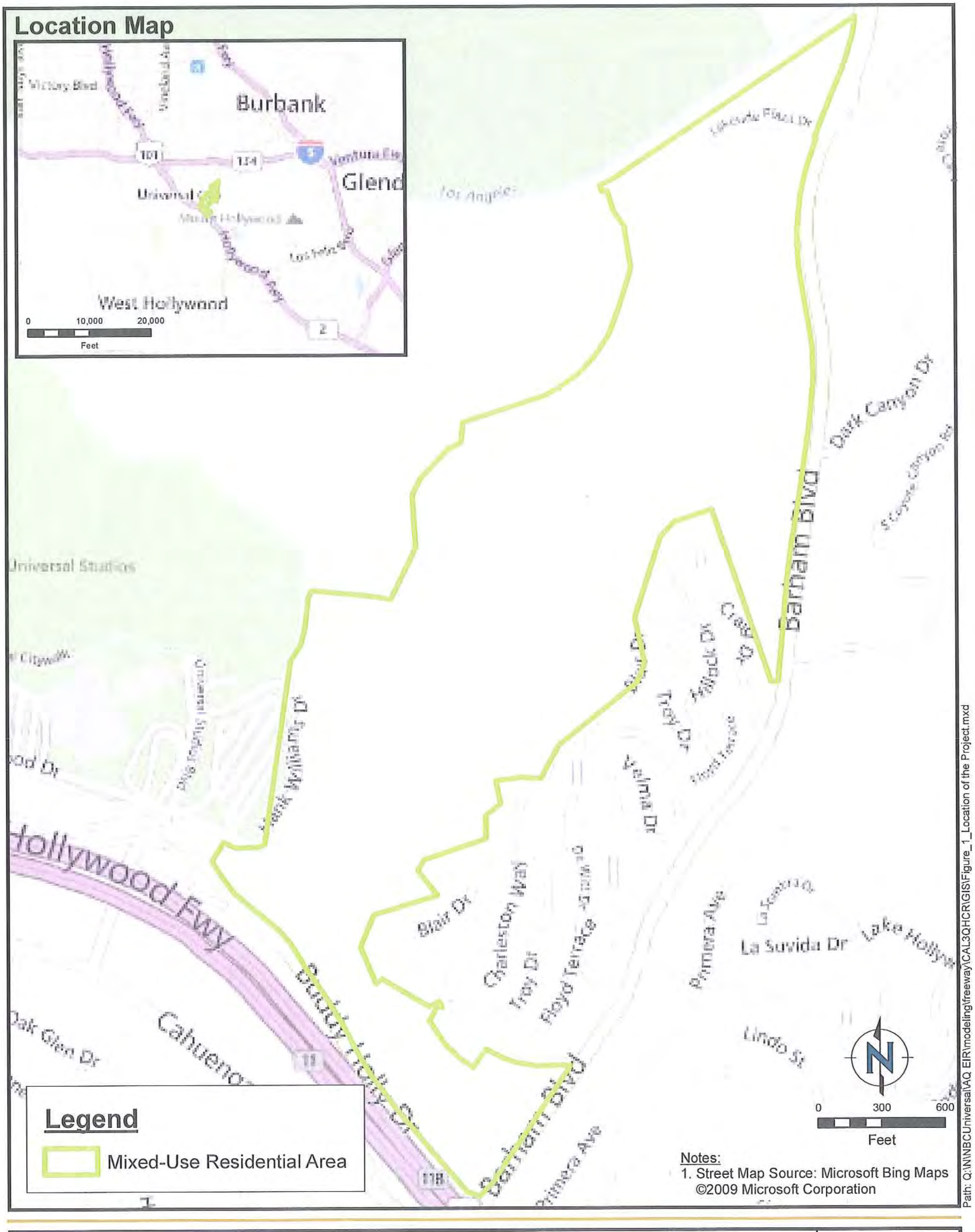
Table 7
Modeled Concentrations at the Maximum Exposed Individual (MEI) Locatior
Evolution Plan
Universal City, California

Chemical	X	Y	Averaging Time	Concentration ($\mu g/m^3$)
TOG Diesel Exhaust	375647.1804	3777585.4513	Annual	0.48
	375557	3777683.5	1-hr	6.41
TOG Gasoline Exhaust	375647.1804	3777585.4513	Annual	1.08
	375557	3777683.5	1-hr	12.83
TOG Gasoline Evaporative	375647.1804	3777585.4513	Annual	1.28
	375557	3777683.5	1-hr	18.33
Diesel Exhaust	375647.1804	3777585.4513	Annual	0.28
	375557	3777683.5	1-hr	0.00

Table 8
Summary of Mitigated Cancer Risk, Noncancer Hazard Indices at the Maximum Location
Evolution Plan
Universal City, California

X	Y	Cancer Risk (in a million)	Chronic HI	Acute HI
375647.1804	3777585.4513	9.2	0.06	N/A
375557	3777683.5	N/A	N/A	0.01

Figures



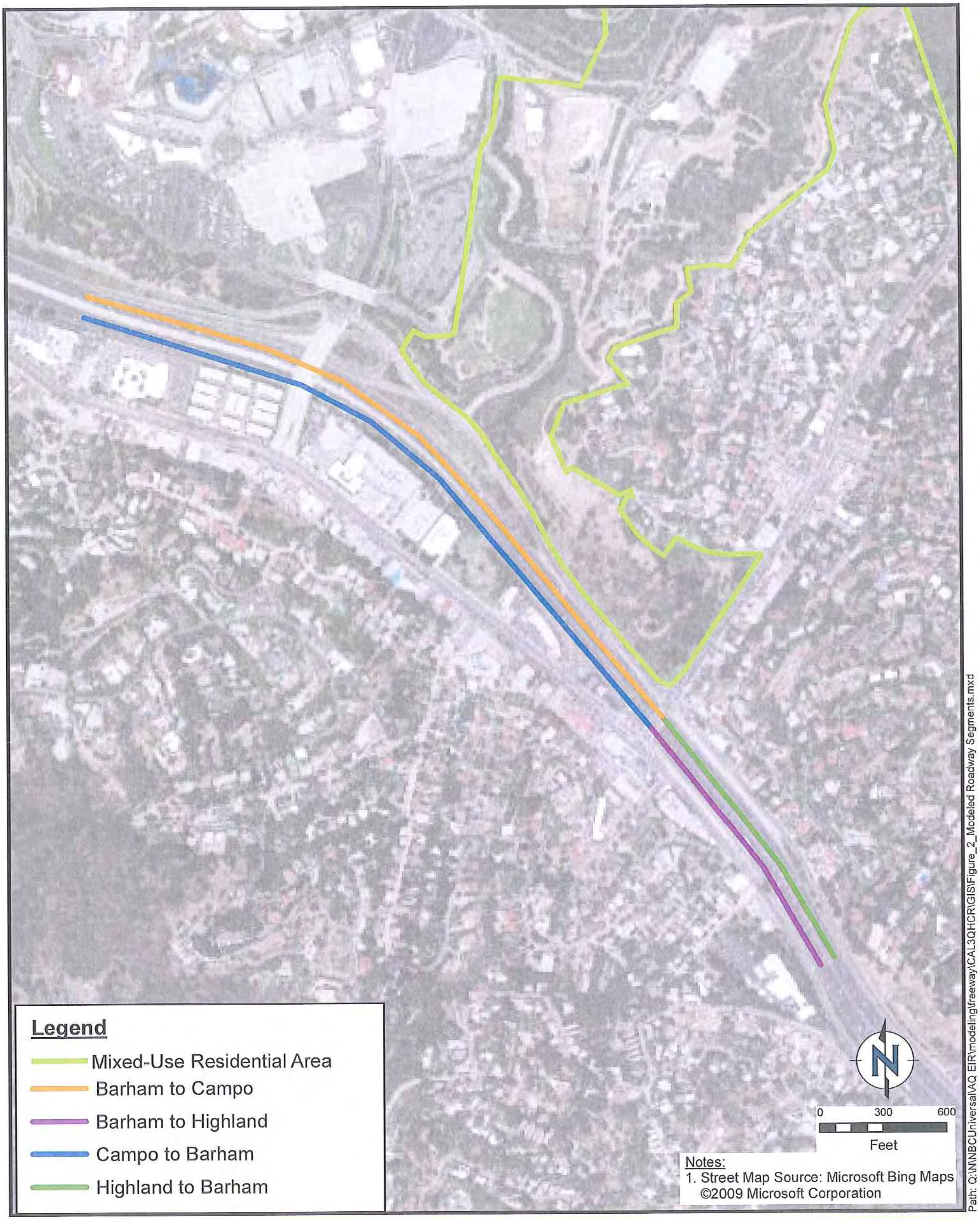
ENVIRON

Location of the Project

NBC Universal Studios, California

Figure 1

DRAFTED BY: slee | Date: 2/29/2012 | PROJECT: 03-17201A



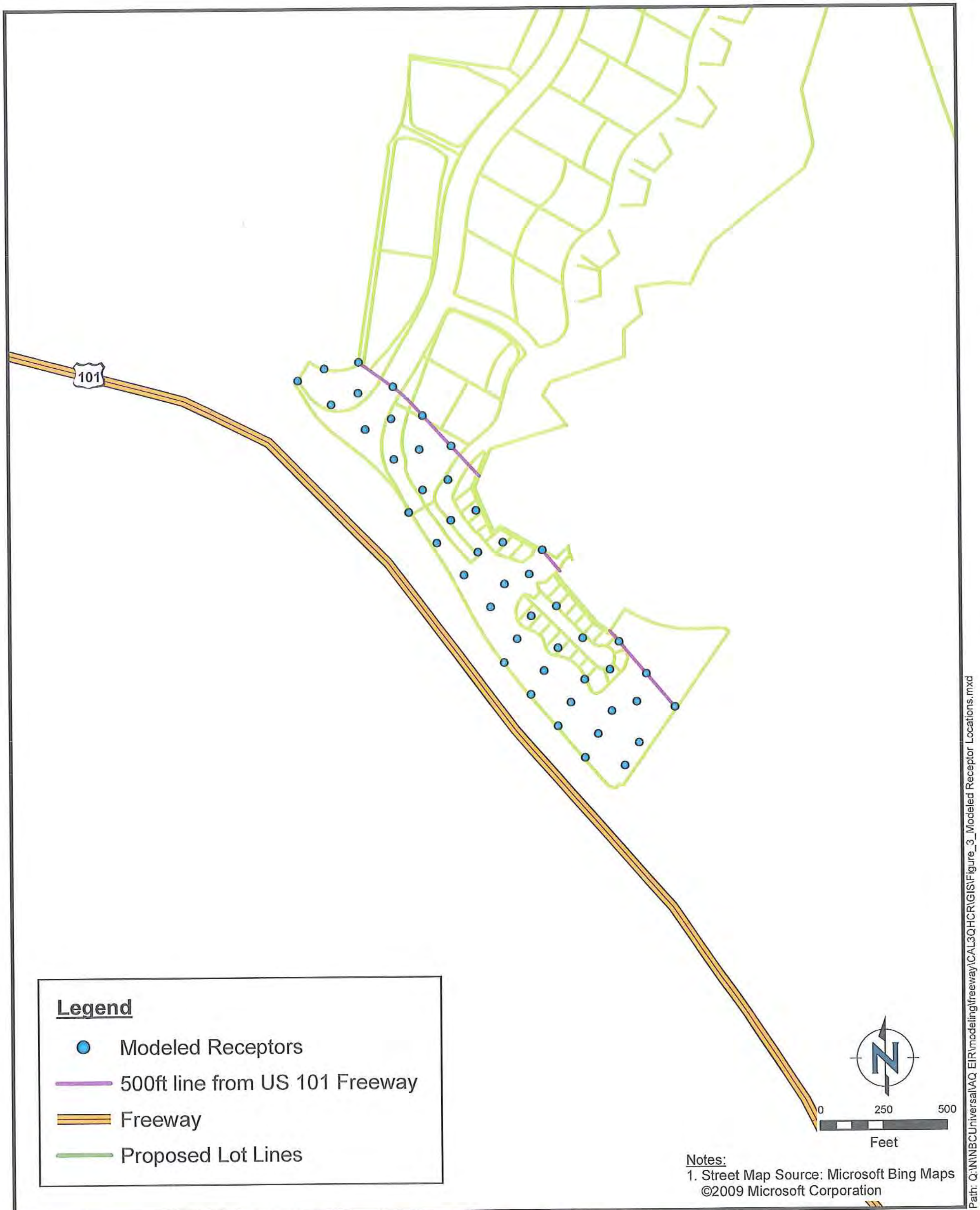
ENVIRON

Modeled Roadway Segments

NBC Universal Studios, California

Figure 2

DRAFTED BY: slee | Date: 6/15/2011 | PROJECT: 03-17201A



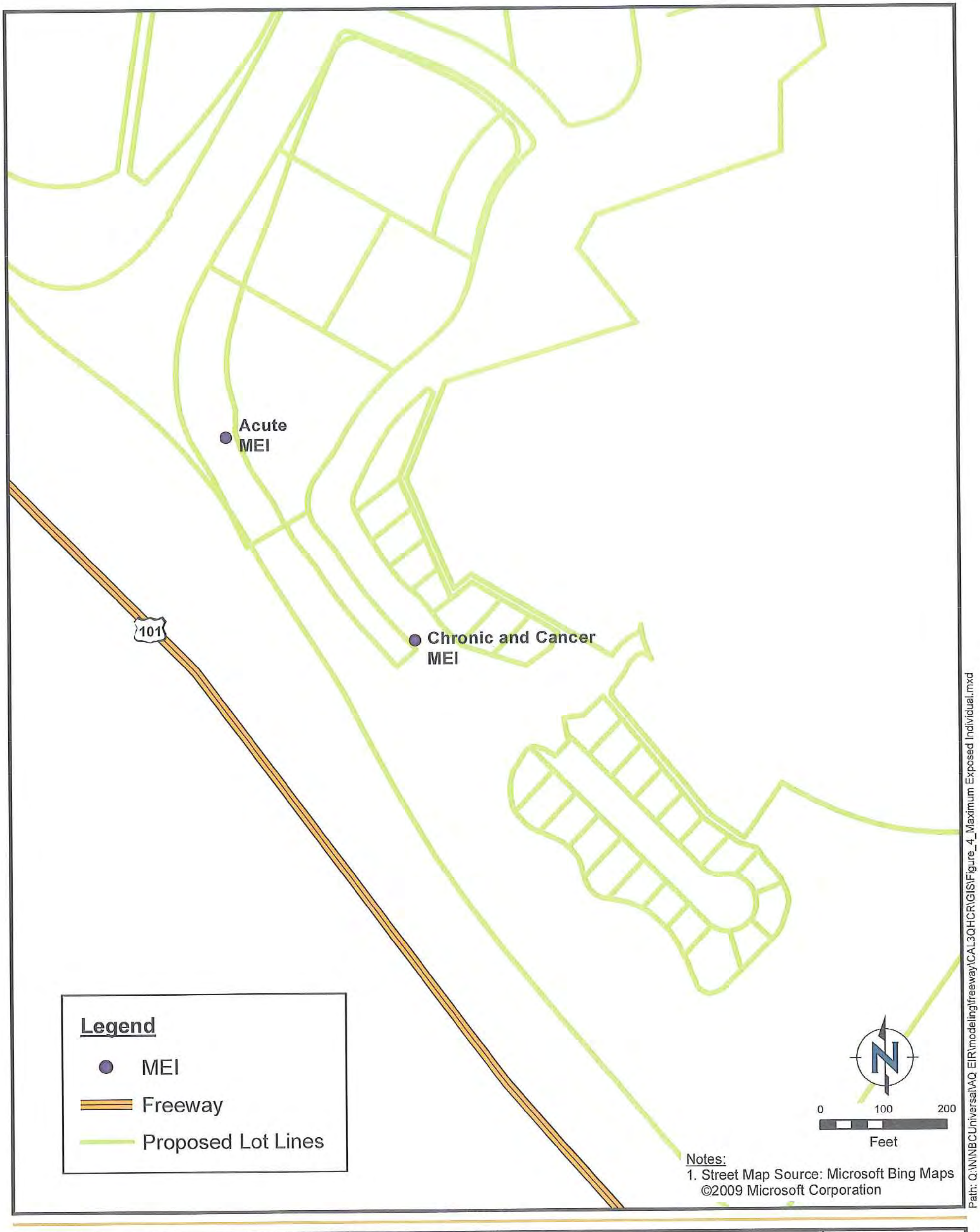
ENVIRON

Modeled Receptor Locations

NBC Universal Studios, California

Figure 3

DRAFTED BY: slee | Date: 6/22/2011 | PROJECT: 03-17201A



ENVIRON

Maximum Exposed Individual

NBC Universal Studios, California

Figure 4

DRAFTED BY: slee | Date: 6/22/2011 | PROJECT: 03-17201A

Attachments

CAL3QHCR (Dated: 04244)

DATE : 10/26/11
TIME : 17:56:34

JOB: 2030 NBCU Traffic Modeling, DPMExh, scaled 1000x 000 RUN: CAL3QHCR RUN

General Information

Run start date: 1/ 1/81 Julian: 1
end date: 12/31/81 Julian: 365

A Tier 2 approach was used for input data preparation.

The MODE flag has been set to P for calculating PM averages.

Ambient background concentrations are excluded from the averages below.

Site & Meteorological Constants

VS = 0.0 CM/S VD = 0.0 CM/S Z0 = 44. CM ATIM = 60.

Met. Sfc. Sta. Id & Yr = 51100 81
Upper Air Sta. Id & Yr = 99999 81

Urban mixing heights were processed.

In 1981, Julian day 1 is a Thursday.

The patterns from the input file
have been assigned as follows:

Pattern # 1 is assigned to Monday.
Pattern # 1 is assigned to Tuesday.
Pattern # 1 is assigned to Wednesday.
Pattern # 1 is assigned to Thursday.
Pattern # 1 is assigned to Friday.
Pattern # 1 is assigned to Saturday.
Pattern # 1 is assigned to Sunday.

Link Data Constants - (Variable data in *.LNK file)

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	*	LENGTH (M)	BRG (DEG)	TYPE	H (M)	W (M)	NLANES
1. N1	*	376047.00	3776911.00	375971.00	3777044.00	*	153.	330.	AG	8.0	24.0	
2. N2	*	375971.00	3777044.00	375801.00	3777259.00	*	274.	322.	AG	10.0	24.0	

3. N3	* 375801.00	3777259.00	375674.00	3777409.00 *	197.	320.	AG	4.0	24.0
4. N4	* 375674.00	3777409.00	375550.00	3777560.00 *	195.	321.	AG	2.0	24.0
5. N5	* 375550.00	3777560.00	375455.00	3777664.00 *	141.	318.	AG	1.0	24.0
6. N6	* 375455.00	3777664.00	375345.00	3777743.00 *	135.	306.	AG	-5.0	24.0
7. N7	* 375345.00	3777743.00	375233.00	3777792.00 *	122.	294.	AG	-7.0	24.0

CAL3QHCR (Dated: 04244)

DATE : 10/26/11
TIME : 17:56:34

PAGE: 2

JOB: 2030 NBCU Traffic Modeling, DPMExh, scaled 1000x 000

RUN: CAL3QHCR RUN

Link Data Constants - (Variable data in *.LNK file)

LINK DESCRIPTION *	X1	Y1	X2	Y2 *	LENGTH (M)	BRG (DEG)	TYPE	H (M)	W (M)	NLANES
8. N8 *	375233.00	3777792.00	374980.00	3777867.00 *	264.	287.	AG	-8.0	24.0	
9. S9 *	374975.00	3777837.00	375287.00	3777738.00 *	327.	108.	AG	-10.0	24.0	
10. S10 *	375287.00	3777738.00	375387.00	3777685.00 *	113.	118.	AG	-7.0	24.0	
11. S11 *	375387.00	3777685.00	375483.00	3777603.00 *	126.	131.	AG	-3.0	24.0	
12. S12 *	375483.00	3777603.00	375786.00	3777241.00 *	472.	140.	AG	2.0	24.0	
13. S13 *	375786.00	3777241.00	375946.00	3777042.00 *	255.	141.	AG	9.0	24.0	
14. S14 *	375946.00	3777042.00	376027.00	3776900.00 *	163.	150.	AG	8.0	24.0	

Receptor Data

RECEPTOR *	X (M)	Y (M)	Z (M)
1. R1_G *	375432.56	3777792.75	8.8
2. R2_G *	375465.00	3777807.00	22.2
3. R3_G *	375473.06	3777763.50	19.3
4. R4_G *	375505.50	3777777.75	36.0
5. R5_G *	375506.47	3777814.50	43.5
6. R6_G *	375513.41	3777734.00	29.2
7. R7_G *	375544.47	3777746.50	44.8
8. R8_G *	375546.94	3777785.25	47.7
9. R9_G *	375547.78	3777697.75	29.9
10. R10_G *	375564.97	3777633.75	16.9
11. R11_G *	375578.22	3777709.50	39.2
12. R12_G *	375581.53	3777660.75	26.8
13. R13_G *	375582.44	3777750.25	41.8
14. R14_G *	375598.53	3777596.75	15.7
15. R15_G *	375611.97	3777672.75	34.1
16. R16_G *	375615.25	3777624.00	23.0
17. R17_G *	375616.19	3777713.25	35.0
18. R18_G *	375630.22	3777558.00	10.2

19. R19_G	*	375645.47	3777635.50	26.9
20. R20_G	*	375647.19	3777585.50	17.8
21. R21_G	*	375661.94	3777519.50	17.5
22. R22_G	*	375677.16	3777597.00	25.0
23. R23_G	*	375677.72	3777452.00	3.4
24. R24_G	*	375678.88	3777546.75	26.6
25. R25_G	*	375693.62	3777480.75	21.2
26. R26_G	*	375708.88	3777558.25	37.5
27. R27_G	*	375709.66	3777413.50	4.0

CAL3QHCR (Dated: 04244)

Receptor Data

RECEPTOR	*	COORDINATES (M) X	Y	Z
28. R28_G	*	375710.59	3777508.25	34.8
29. R29_G	*	375724.62	3777587.25	35.9
30. R30_G	*	375725.44	3777442.25	24.9
31. R31_G	*	375740.59	3777519.50	37.7
32. R32_G	*	375741.94	3777375.50	4.8
33. R33_G	*	375742.31	3777469.50	35.3
34. R34_G	*	375757.72	3777404.00	22.4
35. R35_G	*	375772.38	3777481.00	37.9
36. R36_G	*	375774.25	3777337.25	6.0
37. R37_G	*	375774.56	3777431.25	34.3
38. R38_G	*	375790.03	3777365.75	22.8
39. R39_G	*	375804.66	3777442.75	36.2
40. R40_G	*	375806.84	3777393.00	27.2
41. R41_G	*	375816.22	3777476.50	36.0
42. R42_G	*	375822.31	3777327.50	11.5
43. R43_G	*	375836.97	3777404.75	23.5
44. R44_G	*	375839.12	3777355.00	14.1
45. R45_G	*	375848.50	3777438.25	27.5
46. R46_G	*	375882.75	3777397.75	17.4

Model Results

Remarks : In search of the wind direction corresponding to the maximum concentration, only the first direction, of the directions with the same maximum concentrations, is indicated as the maximum.

* MAXIMUM HOURLY CONCENTRATIONS WITH ANY AMBIENT BACKGROUND CONCENTRATIONS (BKG) ADDED
* (MICROGRAMS/M**3)
* REC1 REC2 REC3 REC4 REC5 REC6 REC7 REC8 REC9 REC10

```
 --------*------------------------------------------------------------------------------
 MAX+BKG * 3483.4 2398.0 2874.2 1810.6 1457.7 2266.5 1460.9 1282.6 2992.3 5261.5
 - BKG  *    0.0    0.0    0.0    0.0    0.0    0.0    0.0    0.0    0.0    0.0
 --------*------------------------------------------------------------------------------
   MAX  * 3483.4 2398.0 2874.2 1810.6 1457.7 2266.5 1460.9 1282.6 2992.3 5261.5
 WIND DIR*   151    155    155    155    156    277    155    156    283    290
 JULIAN *    138    193    193    193    221    295    193    221    291      2
 HOUR   *      4      4      4      4      4      4      4      4      4      4
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CAL3QHCR (Dated: 04244)

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JOB: 2030 NBCU Traffic Modeling, DPMExh, scaled 1000x 000          RUN: CAL3QHCR RUN

       * MAXIMUM HOURLY CONCENTRATIONS WITH ANY AMBIENT BACKGROUND
CONCENTRATIONS (BKG) ADDED
       *  (MICROGRAMS/M**3)
       *  REC11  REC12  REC13  REC14  REC15  REC16  REC17  REC18  REC19  REC20
 --------*------------------------------------------------------------------------------
 MAX+BKG * 2042.9 4268.3 1353.8 3832.8 2730.7 4282.9 1439.0 4895.5 3480.5 3069.1
 - BKG  *    0.0    0.0    0.0    0.0    0.0    0.0    0.0    0.0    0.0    0.0
 --------*------------------------------------------------------------------------------
   MAX  * 2042.9 4268.3 1353.8 3832.8 2730.7 4282.9 1439.0 4895.5 3480.5 3069.1
 WIND DIR*   280    285    156    292    283    289    156    294    284    290
 JULIAN *    358     45    221    312     50    336    221    259    337     67
 HOUR   *      4      4      4      4      4      4      4      4      4      4

       *  REC21  REC22  REC23  REC24  REC25  REC26  REC27  REC28  REC29  REC30
 --------*------------------------------------------------------------------------------
 MAX+BKG * 4253.9 3441.1 6629.8 2736.9 3523.0 1818.1 6483.4 2356.9 2900.0 2963.9
 - BKG  *    0.0    0.0    0.0    0.0    0.0    0.0    0.0    0.0    0.0    0.0
 --------*------------------------------------------------------------------------------
   MAX  * 4253.9 3441.1 6629.8 2736.9 3523.0 1818.1 6483.4 2356.9 2900.0 2963.9
 WIND DIR*   300    289    302    293    301    291    304    294    289    302
 JULIAN *    316    336    335     18     43    168     10    259    336    335
 HOUR   *      4      4      4      4      4      4      4      4      4      4

       *  REC31  REC32  REC33  REC34  REC35  REC36  REC37  REC38  REC39  REC40
 --------*------------------------------------------------------------------------------
 MAX+BKG * 1907.3 6246.9 2444.6 3054.1 1977.9 6099.2 2316.2 3055.1 1912.7 2550.9
 - BKG  *    0.0    0.0    0.0    0.0    0.0    0.0    0.0    0.0    0.0    0.0
 --------*------------------------------------------------------------------------------
   MAX  * 1907.3 6246.9 2444.6 3054.1 1977.9 6099.2 2316.2 3055.1 1912.7 2550.9
 WIND DIR*   293    304    300    302    294    305    301    304    294    301
 JULIAN *     18     26    316    335    259    348     43     10    259     43
 HOUR   *      4      4      4      4      4      4      4      4      4      4

       *  REC41  REC42  REC43  REC44  REC45  REC46
 --------*-------------------------------------------
 MAX+BKG * 1817.6 3840.4 2356.7 2846.8 2069.8 2138.5
 - BKG  *    0.0    0.0    0.0    0.0    0.0    0.0
 --------*-------------------------------------------
```

MAX * 1817.6 3840.4 2356.7 2846.8 2069.8 2138.5
WIND DIR* 293 302 300 301 294 294
JULIAN * 18 335 316 43 259 259
HOUR * 4 4 4 4 4 4

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JOB: 2030 NBCU Traffic Modeling, DPMExh, scaled 1000x 000 RUN: CAL3QHCR RUN

THE HIGHEST CONCENTRATION OF 6629.80 UG/M**3 OCCURRED AT RECEPTOR REC23.

CAL3QHCR (Dated: 04244)

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JOB: 2030 NBCU Traffic Modeling, DPMExh, scaled 1000x 000 RUN: CAL3QHCR RUN

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Output Section
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NOTES PERTAINING TO THE REPORT

1. THE HIGHEST AVERAGE IN EACH OF THE FIRST TWO COLUMNS OF EACH TABLE BELOW ARE SUFFIXED BY AN ASTERISK (*).
FOR PM OUTPUT, THERE IS ONLY ONE COLUMN AND ASTERISK FOR THE ANNUAL AVERAGE/PERIOD OF CONCERN TABLE.

2. THE NUMBERS IN PARENTHESES ARE THE JULIAN DAY AND ENDING HOUR FOR THE PRECEDING AVERAGE.

3. THE NUMBER OF CALM HOURS USED IN PRODUCING EACH AVERAGE ARE PREFIXED BY A C.

PRIMARY AND SECONDARY AVERAGES.

FIVE HIGHEST 24-HOUR END-TO-END AVERAGE CONCENTRATIONS IN MICROGRAMS/M**3
EXCLUDING AMBIENT BACKGROUND CONCENTRATIONS.

Rcptr No.	Highest Conc	Ending Day Hr	Calm	Second Highest Conc	Ending Day Hr	Calm	Third Highest Conc	Ending Day Hr	Calm	Fourth Highest Conc	Ending Day Hr	Calm	Fifth Highest Conc	Ending Day Hr	Calm
1	627.87	(133,24)	C 3	602.01	(145,24)	C 2	576.17	(134,24)	C 5	557.21	(88,24)	C 4	544.25	(298,24)	C 2
2	409.68	(134,24)	C 5	408.21	(133,24)	C 3	406.84	(145,24)	C 2	388.41	(88,24)	C 4	374.85	(249,24)	C 2
3	505.30	(133,24)	C 3	487.78	(145,24)	C 2	484.63	(134,24)	C 5	462.77	(88,24)	C 4	453.21	(298,24)	C 2
4	290.55	(133,24)	C 3	267.80	(145,24)	C 2	262.75	(309,24)	C 0	261.96	(298,24)	C 2	261.01	(88,24)	C 4
5	224.92	(133,24)	C 3	212.52	(145,24)	C 2	209.78	(88,24)	C 4	207.99	(134,24)	C 5	205.21	(298,24)	C 2
6	464.32	(295,24)	C 6	440.73	(350,24)	C 4	398.89	(286,24)	C 3	391.80	(239,24)	C 5	388.19	(309,24)	C 0

7 241.70 (295,24) C 6 224.59 (350,24) C 4 223.59 (133,24) C 3 219.44 (309,24) C 0 207.34 (286,24) C 3
8 189.46 (133,24) C 3 186.12 (309,24) C 0 182.40 (347,24) C 1 181.62 (145,24) C 2 180.57 (88,24) C 4
9 522.07 (350,24) C 4 518.06 (295,24) C 6 501.31 (312,24) C 6 481.31 (291,24) C 3 461.65 (358,24) C 6
10 925.34 (312,24) C 6 904.01 (350,24) C 4 831.05 (318,24) C 2 822.02 (291,24) C 3 806.00 (36,24) C 3
11 375.66 (295,24) C 6 357.27 (350,24) C 4 324.76 (312,24) C 6 322.60 (291,24) C 3 314.88 (296,24) C 2
12 697.44 (312,24) C 6 681.57 (350,24) C 4 640.68 (358,24) C 6 636.81 (295,24) C 6 635.07 (291,24) C 3
13 228.19 (295,24) C 6 223.26 (350,24) C 4 218.16 (309,24) C 0 213.79 (286,24) C 3 209.60 (40,24) C 1
14 789.94 (350,24) C 4 753.78 (312,24) C 6 729.30 (318,24) C 2 682.39 (291,24) C 3 672.21 (58,24) C 2
15 457.43 (350,24) C 4 447.83 (312,24) C 6 445.76 (295,24) C 6 421.45 (291,24) C 3 416.81 (358,24) C 6
16 730.42 (312,24) C 6 700.61 (350,24) C 4 648.07 (291,24) C 3 629.21 (358,24) C 6 619.14 (36,24) C 3
17 297.69 (295,24) C 6 294.60 (350,24) C 4 274.96 (286,24) C 3 263.23 (134,24) C 5 261.25 (239,24) C 5
181025.47 (350,24) C 4 968.21 (318,24) C 2 949.99 (312,24) C 6 904.12 (8,24) C 2 891.23 (352,24) C 5
19 591.31 (312,24) C 6 587.59 (350,24) C 4 546.34 (358,24) C 6 536.91 (291,24) C 3 536.91 (295,24) C 6
20 646.60 (350,24) C 4 623.69 (312,24) C 6 565.00 (291,24) C 3 556.55 (318,24) C 2 544.50 (58,24) C 2
21 774.36 (318,24) C 2 771.75 (8,24) C 2 758.44 (350,24) C 4 721.25 (335,24) C 2 682.37 (312,24) C 6
22 600.95 (312,24) C 6 577.10 (350,24) C 4 531.88 (291,24) C 3 511.58 (358,24) C 6 505.44 (36,24) C 3
231674.07*(350,24) C 41611.94*(8,24) C 21562.38 (318,24) C 21534.23 (324,24) C 51484.26 (352,24) C 5
24 479.86 (350,24) C 4 473.99 (312,24) C 6 460.76 (318,24) C 2 423.37 (36,24) C 3 417.63 (291,24) C 3
25 661.35 (8,24) C 2 631.76 (318,24) C 2 608.25 (335,24) C 2 600.52 (350,24) C 4 576.12 (359,24) C 6
26 317.86 (312,24) C 6 310.15 (350,24) C 4 277.79 (318,24) C 2 276.92 (18,24) C 7 274.90 (291,24) C 3

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RUN: CAL3QHCR RUN

FIVE HIGHEST 24-HOUR END-TO-END AVERAGE CONCENTRATIONS IN MICROGRAMS/M**3
EXCLUDING AMBIENT BACKGROUND CONCENTRATIONS.

Highest Second Highest Third Highest Fourth Highest Fifth Highest
Rcptr Ending Ending Ending Ending Ending
No. Conc Day Hr Calm Conc Day Hr Calm Conc Day Hr Calm Conc Day Hr Calm Conc Day Hr
Calm

271603.28 (350,24) C 41575.59 (8,24) C 21505.95 (318,24) C 21502.76 (324,24) C 51428.21 (352,24) C 5
28 380.56 (318,24) C 2 369.99 (335,24) C 2 364.96 (8,24) C 2 350.09 (350,24) C 4 344.14 (18,24) C 7
29 474.64 (312,24) C 6 442.86 (350,24) C 4 416.38 (291,24) C 3 409.59 (358,24) C 6 391.29 (36,24) C 3
30 558.60 (8,24) C 2 515.85 (318,24) C 2 509.95 (335,24) C 2 495.16 (359,24) C 6 477.27 (350,24) C 4
31 316.94 (312,24) C 6 312.04 (350,24) C 4 288.06 (18,24) C 7 287.97 (318,24) C 2 280.30 (36,24) C 3
321546.40 (350,24) C 41532.29 (8,24) C 21467.12 (324,24) C 51449.91 (318,24) C 21381.22 (352,24) C 5
33 385.42 (8,24) C 2 382.63 (335,24) C 2 368.40 (318,24) C 2 349.14 (359,24) C 6 338.73 (350,24) C 4
34 609.75 (8,24) C 2 549.68 (318,24) C 2 545.23 (350,24) C 4 544.57 (335,24) C 2 533.61 (359,24) C 6
35 314.25 (350,24) C 4 310.65 (312,24) C 6 297.28 (318,24) C 2 294.38 (18,24) C 7 293.15 (335,24) C 2
361474.44 (8,24) C 21468.67 (350,24) C 41418.71 (324,24) C 51373.60 (318,24) C 21320.71 (352,24) C 5
37 386.22 (8,24) C 2 374.61 (335,24) C 2 350.56 (318,24) C 2 347.89 (359,24) C 6 339.86 (350,24) C 4
38 605.19 (8,24) C 2 546.13 (359,24) C 6 545.68 (335,24) C 2 538.67 (324,24) C 5 534.30 (350,24) C 4
39 329.09 (350,24) C 4 310.44 (312,24) C 6 309.32 (335,24) C 2 306.48 (8,24) C 2 301.70 (318,24) C 2
40 469.96 (8,24) C 2 454.71 (350,24) C 4 439.30 (335,24) C 2 420.31 (324,24) C 5 419.42 (318,24) C 2
41 328.57 (350,24) C 4 326.56 (312,24) C 6 289.51 (352,24) C 5 288.76 (291,24) C 3 277.97 (36,24) C 3
42 900.36 (350,24) C 4 877.36 (8,24) C 2 832.21 (324,24) C 5 801.89 (352,24) C 5 792.38 (134,24) C 5
43 495.01 (350,24) C 4 442.17 (312,24) C 6 439.57 (352,24) C 5 432.44 (8,24) C 2 422.06 (134,24) C 5
44 697.07 (350,24) C 4 625.27 (134,24) C 5 620.00 (8,24) C 2 604.59 (352,24) C 5 601.26 (312,24) C 6
45 416.02 (350,24) C 4 394.61 (312,24) C 6 368.91 (352,24) C 5 359.80 (291,24) C 3 354.18 (134,24) C 5

46 500.09 (350,24) C 4 457.22 (312,24) C 6 451.63 (134,24) C 5 440.04 (352,24) C 5 426.59 (291,24) C 3

THE HIGHEST ANNUAL AVERAGE CONCENTRATIONS
IN MICROGRAMS/M**3
EXCLUDING AMBIENT BACKGROUND CONCENTRATIONS.

Receptor Number	Maximum Conc	Ending Day Hr	Calm
1	277.87	(365,24)	C 887
2	188.06	(365,24)	C 887
3	242.39	(365,24)	C 887
4	138.45	(365,24)	C 887
5	105.69	(365,24)	C 887
6	198.94	(365,24)	C 887
7	106.69	(365,24)	C 887
8	94.62	(365,24)	C 887
9	204.14	(365,24)	C 887
10	366.58	(365,24)	C 887
11	139.98	(365,24)	C 887
12	244.62	(365,24)	C 887
13	109.72	(365,24)	C 887
14	349.67	(365,24)	C 887

THE HIGHEST ANNUAL AVERAGE CONCENTRATIONS
IN MICROGRAMS/M**3
EXCLUDING AMBIENT BACKGROUND CONCENTRATIONS.

Receptor Number	Maximum Conc	Ending Day Hr	Calm
15	168.88	(365,24)	C 887
16	265.62	(365,24)	C 887
17	134.09	(365,24)	C 887
18	451.97	(365,24)	C 887
19	215.56	(365,24)	C 887
20	280.62	(365,24)	C 887
21	331.86	(365,24)	C 887
22	220.64	(365,24)	C 887
23	816.40*	(365,24)	C 887
24	201.92	(365,24)	C 887
25	268.24	(365,24)	C 887
26	126.12	(365,24)	C 887
27	785.53	(365,24)	C 887
28	143.52	(365,24)	C 887
29	155.36	(365,24)	C 887
30	216.44	(365,24)	C 887
31	125.70	(365,24)	C 887
32	758.29	(365,24)	C 887
33	139.43	(365,24)	C 887

34	246.46	(365,24) C 887
35	124.93	(365,24) C 887
36	718.25	(365,24) C 887
37	141.76	(365,24) C 887
38	241.07	(365,24) C 887
39	131.20	(365,24) C 887
40	191.84	(365,24) C 887
41	129.66	(365,24) C 887
42	407.42	(365,24) C 887
43	203.67	(365,24) C 887
44	301.88	(365,24) C 887
45	166.59	(365,24) C 887
46	205.34	(365,24) C 887

CALM DURATION FREQUENCY

Hours of Consecutive Calm Winds | Frequency of Occurrence | (Julian day/hour ending) of Significant Occurrences

1 483 (2, 2)(2,14)(5,20)(7, 8)(8, 2)(8,22)(9, 1)(9,11)(9,20)(9,23)
(10, 2)(10, 6)(10,17)(10,22)(11, 8)(13, 2)(13, 4)(13,18)(13,23)(14, 6)
(14,24)(15,10)(16, 6)(16,13)(16,20)(17, 5)(17,10)(17,13)(17,17)(18,18)
(18,24)(19, 2)(19,10)(19,12)(20,18)(21, 4)(21,17)(21,23)(22, 3)(22, 6)
(22,10)(24, 6)(24, 9)(25,22)(26,10)(26,23)(30, 8)(31,22)(32, 3)(32, 7)
(32,20)(33, 4)(34, 6)(34,22)(34,24)(35, 4)(35, 6)(35, 8)(35,21)(36, 6)
(36,18)(36,22)(37, 9)(37,23)(38, 2)(38, 6)(39, 7)(40,20)(41, 2)(41, 7)
(44, 1)(45, 3)(45, 8)(45,11)(46, 3)(47, 8)(47,11)(48,21)(50, 3)(50, 7)
(53, 7)(53,21)(53,24)(54, 9)(57,19)(59, 3)(59, 6)(65, 6)(65,21)(65,23)
(67, 2)(67, 5)(67, 7)(70,22)(72, 2)(72, 8)(73, 4)(73, 7)(74, 2)(74, 4)
(76, 2)(80, 7)(80,22)(81, 4)(81,24)(83, 4)(86, 3)(86, 5)(88, 7)(88,22)
(89, 2)(89, 5)(89,19)(89,24)(90, 8)(93, 1)(94, 9)(94,22)(95, 9)(95,23)
(99, 2)(101, 6)(105, 2)(106, 3)(106, 5)(106, 7)(108,21)(110, 2)(121, 1)(124, 3)
(125, 7)(128, 5)(129, 4)(129,22)(132,21)(132,24)(133,10)(133,20)(133,23)(134, 6)
(134,20)(135, 2)(135, 4)(135, 7)(136, 2)(137, 6)(137, 9)(137,18)(138,21)(141, 4)
(141, 9)(141,24)(142, 5)(143, 2)(144, 4)(145, 4)(145, 7)(146,16)(148, 1)(148,24)
(149, 4)(149,22)(151, 5)(152, 8)(153, 5)(154, 5)(154, 7)(154,10)(155, 5)(157, 6)
(158, 3)(166,19)(167, 9)(170, 8)(172, 4)(173, 1)(173, 3)(173, 6)(173, 8)(174,24)
(175, 5)(176, 5)(177, 4)(177,10)(178, 5)(179, 3)(179, 8)(180, 5)(180, 8)(181, 1)
(181, 5)(182, 8)(184, 7)(188, 2)(189, 5)(189, 7)(190, 1)(191, 7)(192, 7)(193, 7)
(195, 3)(195, 5)(196, 3)(196, 5)(196, 8)(199, 2)(199, 5)(200, 8)(202, 7)(205, 5)
(206, 6)(207, 8)(208, 3)(209, 1)(209,24)(212, 5)(213, 3)(213, 6)(214, 4)(214, 8)
(215, 6)(217, 8)(217,24)(218, 8)(222, 8)(222,24)(223, 4)(223, 7)(224, 2)(225, 7)
(225,21)(226,23)(227, 1)(229, 5)(230, 7)(231, 2)(232,21)(232,23)(233, 2)(233, 5)
(235, 8)(236, 1)(236, 4)(236, 8)(236,23)(237, 6)(238, 8)(239,22)(240,21)(241, 5)
(242, 8)(243, 5)(244, 4)(245, 7)(247, 3)(247, 5)(247,22)(248, 2)(249, 9)(249,11)
(250, 4)(250, 9)(250,24)(251, 6)(251, 9)(252, 2)(252, 6)(252, 9)(253, 4)(254, 5)

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                (254,22)(254,24)(255, 4)(256, 2)(256, 4)(256, 7)(257, 1)(257, 5)(257, 7)(259,19)
                (260, 4)(260,23)(261,21)(261,24)(262, 2)(262,18)(264,22)(266, 9)(267, 5)(268, 1)
                (268, 9)(269, 3)(273, 1)(273, 7)(274, 1)(274,22)(275, 2)(275,10)(276,10)(276,12)
                (277, 1)(277, 5)(277, 8)(277,18)(278, 8)(278,23)(279, 6)(279, 8)(279,24)(280, 4)
                (281, 2)(281, 5)(282, 4)(282, 7)(283, 8)(284, 1)(284, 3)(284, 5)(285,20)(286, 5)
                (286,18)(287, 2)(287, 6)(287, 8)(287,10)(287,18)(288, 2)(288, 4)(288,21)(288,23)
                (289, 9)(289,23)(290, 7)(290,23)(291, 2)(292, 4)(292,11)(294, 8)(295, 2)(295, 8)
                (295,20)(295,24)(297, 5)(298, 7)(298, 9)(299,20)(299,23)(300, 4)(300, 6)(300,22)
                (301, 7)(301,22)(302, 4)(303,19)(304, 9)(304,17)(305,22)(306, 2)(306, 4)(306, 6)
                (306,10)(306,12)(307, 9)(307,18)(307,20)(308, 7)(308,10)(308,21)(308,23)(310,20)
                (310,23)(311,11)(312, 1)(312, 5)(312, 7)(312, 9)(312,22)(313, 7)(314, 2)(314, 9)
                (314,12)(314,19)(314,24)(315,22)(317,19)(318, 8)(318,18)(319, 7)(319,19)(320, 6)
                (321, 7)(321,21)(322, 1)(322,20)(323, 4)(324, 2)(324,19)(324,24)(326, 4)(326, 9)
                (326,20)(326,23)(327,10)(328, 7)(329, 1)(330, 4)(331, 1)(331,13)(333,19)(334,22)
                (335, 3)(335,22)(336, 1)(336, 3)(336,22)(337, 1)(337, 5)(337, 7)(337,17)(338, 4)
                (338, 8)(338,21)(338,24)(339,19)(339,21)(341,10)(341,20)(341,23)(342, 3)(342,12)
                (342,17)(342,23)(343, 1)(343, 7)(343,10)(343,19)(344, 3)(344, 6)(344,10)(344,12)
                (344,24)(345, 7)(345, 9)(345,11)(345,15)(345,21)(346,12)(347,23)(348, 5)(348,10)
                (348,17)(349, 2)(349, 7)(349,10)(349,19)(349,21)(349,24)(350, 3)(351, 5)(351,10)
                (352, 3)(352, 6)(352, 8)(353, 5)(353, 8)(353,19)(353,21)(353,23)(354, 6)(354,15)
                (355, 8)(357,20)(358,16)(359, 5)(359, 8)(359,22)(360,10)(360,17)(361,19)(362,24)
                (363, 2)(363, 4)(363,18)
   2      99     ( 7, 3)( 14,20)( 15, 5)( 16, 9)( 17,23)( 18, 2)( 19,22)( 23,23)( 25, 8)( 30, 5)
                ( 34, 9)( 37, 7)( 49,23)( 54, 4)( 58, 9)( 66,24)( 67,23)( 68, 2)( 68, 5)( 74,23)
                ( 76, 7)( 82, 6)( 84, 6)( 91, 1)( 93, 6)(127, 7)(129, 1)(143, 9)(143,24)(144, 8)
                (150, 5)(168, 3)(170, 6)(171, 6)(171, 9)(179, 6)(184, 5)(186, 5)(193, 1)(194, 4)
                (215,12)(227,10)(238, 6)(239, 3)(239, 9)(242, 5)(254, 1)(254, 8)(255, 9)(258, 1)
                (261, 4)(262, 6)(262,22)(263, 8)(264, 9)(268, 6)(271, 7)(275, 6)(280,10)(282,23)
                (286, 1)(287,23)(293, 8)(295, 6)(296, 3)(299, 5)(300, 9)(305,10)(307, 1)(311,23)
                (317, 5)(319,23)(322, 7)(323,18)(323,24)(324,10)(325, 4)(325,10)(328,10)(333, 1)
                (333, 6)(334, 8)(334,20)(339, 4)(339,10)(341, 4)(346,24)(348,22)(349, 5)(351,22)
                (352,18)(354,10)(354,19)(358, 9)(358,20)(360, 1)(361, 1)(363, 7)(365, 6)
   3      34     ( 12,21)( 17, 3)( 18,10)( 25,20)( 74, 8)( 88, 2)( 90, 4)( 91, 7)( 94, 7)( 95, 5)
                (134, 3)(137, 2)(169, 8)(222, 5)(228, 9)(251, 4)(258, 8)(270, 7)(278, 1)(279, 4)
                (288, 8)(311, 7)(313, 2)(315, 6)(319, 3)(323, 2)(323,10)(332,21)(337,24)(341, 8)
                (343, 5)(344,22)(350,24)(359, 2)
   4      12     ( 9, 7)( 39, 5)( 42, 4)( 49, 8)(131, 5)(141, 2)(152, 5)(201, 9)(278, 6)(292, 2)
                (313,24)(346, 4)
   5       3     ( 34, 3)(234, 8)(362, 6)
   6       2     (146, 7)(240, 8)
   8       2     (305, 6)(340, 6)
  13       1     ( 5,13)
```

Program terminated normally

CAL3QHCR (Dated: 04244)

DATE : 10/26/11
TIME : 17:56:14

PAGE: 1

JOB: 2030 NBCU Traffic Modeling, PMExh, scaled 1000x 000

RUN: CAL3QHCR RUN

===================
General Information
===================

Run start date: 1/ 1/81 Julian: 1
end date: 12/31/81 Julian: 365

A Tier 2 approach was used for input data preparation.

The MODE flag has been set to P for calculating PM averages.

Ambient background concentrations are excluded from the averages below.

Site & Meteorological Constants

VS = 0.0 CM/S VD = 0.0 CM/S Z0 = 44. CM ATIM = 60.

Met. Sfc. Sta. Id & Yr = 51100 81
Upper Air Sta. Id & Yr = 99999 81

Urban mixing heights were processed.

In 1981, Julian day 1 is a Thursday.

The patterns from the input file
have been assigned as follows:

Pattern # 1 is assigned to Monday.
Pattern # 1 is assigned to Tuesday.
Pattern # 1 is assigned to Wednesday.
Pattern # 1 is assigned to Thursday.
Pattern # 1 is assigned to Friday.
Pattern # 1 is assigned to Saturday.
Pattern # 1 is assigned to Sunday.

Link Data Constants - (Variable data in *.LNK file)

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	*	LENGTH (M)	BRG (DEG)	TYPE	H (M)	W (M)	NLANES
1. N1	*	376047.00	3776911.00	375971.00	3777044.00	*	153.	330.	AG	8.0	24.0	
2. N2	*	375971.00	3777044.00	375801.00	3777259.00	*	274.	322.	AG	10.0	24.0	

3. N3	*	375801.00	3777259.00	375674.00	3777409.00 *	197.	320.	AG	4.0	24.0
4. N4	*	375674.00	3777409.00	375550.00	3777560.00 *	195.	321.	AG	2.0	24.0
5. N5	*	375550.00	3777560.00	375455.00	3777664.00 *	141.	318.	AG	1.0	24.0
6. N6	*	375455.00	3777664.00	375345.00	3777743.00 *	135.	306.	AG	-5.0	24.0
7. N7	*	375345.00	3777743.00	375233.00	3777792.00 *	122.	294.	AG	-7.0	24.0

CAL3QHCR (Dated: 04244)

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JOB: 2030 NBCU Traffic Modeling, PMExh, scaled 1000x 000

RUN: CAL3QHCR RUN

Link Data Constants - (Variable data in *.LNK file)

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2 *	LENGTH (M)	BRG (DEG)	TYPE	H (M)	W (M) NLANES
8. N8	*	375233.00	3777792.00	374980.00	3777867.00 *	264.	287.	AG	-8.0	24.0
9. S9	*	374975.00	3777837.00	375287.00	3777738.00 *	327.	108.	AG	-10.0	24.0
10. S10	*	375287.00	3777738.00	375387.00	3777685.00 *	113.	118.	AG	-7.0	24.0
11. S11	*	375387.00	3777685.00	375483.00	3777603.00 *	126.	131.	AG	-3.0	24.0
12. S12	*	375483.00	3777603.00	375786.00	3777241.00 *	472.	140.	AG	2.0	24.0
13. S13	*	375786.00	3777241.00	375946.00	3777042.00 *	255.	141.	AG	9.0	24.0
14. S14	*	375946.00	3777042.00	376027.00	3776900.00 *	163.	150.	AG	8.0	24.0

Receptor Data

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. R1_G	*	375432.56	3777792.75	8.8
2. R2_G	*	375465.00	3777807.00	22.2
3. R3_G	*	375473.06	3777763.50	19.3
4. R4_G	*	375505.50	3777777.75	36.0
5. R5_G	*	375506.47	3777814.50	43.5
6. R6_G	*	375513.41	3777734.00	29.2
7. R7_G	*	375544.47	3777746.50	44.8
8. R8_G	*	375546.94	3777785.25	47.7
9. R9_G	*	375547.78	3777697.75	29.9
10. R10_G	*	375564.97	3777633.75	16.9
11. R11_G	*	375578.22	3777709.50	39.2
12. R12_G	*	375581.53	3777660.75	26.8
13. R13_G	*	375582.44	3777750.25	41.8
14. R14_G	*	375598.53	3777596.75	15.7
15. R15_G	*	375611.97	3777672.75	34.1
16. R16_G	*	375615.25	3777624.00	23.0
17. R17_G	*	375616.19	3777713.25	35.0
18. R18_G	*	375630.22	3777558.00	10.2

19. R19_G	*	375645.47	3777635.50	26.9
20. R20_G	*	375647.19	3777585.50	17.8
21. R21_G	*	375661.94	3777519.50	17.5
22. R22_G	*	375677.16	3777597.00	25.0
23. R23_G	*	375677.72	3777452.00	3.4
24. R24_G	*	375678.88	3777546.75	26.6
25. R25_G	*	375693.62	3777480.75	21.2
26. R26_G	*	375708.88	3777558.25	37.5
27. R27_G	*	375709.66	3777413.50	4.0

JOB: 2030 NBCU Traffic Modeling, PMExh, scaled 1000x 000

RUN: CAL3QHCR RUN

Receptor Data

RECEPTOR	*	COORDINATES (M) X	Y	Z
28. R28_G	*	375710.59	3777508.25	34.8
29. R29_G	*	375724.62	3777587.25	35.9
30. R30_G	*	375725.44	3777442.25	24.9
31. R31_G	*	375740.59	3777519.50	37.7
32. R32_G	*	375741.94	3777375.50	4.8
33. R33_G	*	375742.31	3777469.50	35.3
34. R34_G	*	375757.72	3777404.00	22.4
35. R35_G	*	375772.38	3777481.00	37.9
36. R36_G	*	375774.25	3777337.25	6.0
37. R37_G	*	375774.56	3777431.25	34.3
38. R38_G	*	375790.03	3777365.75	22.8
39. R39_G	*	375804.66	3777442.75	36.2
40. R40_G	*	375806.84	3777393.00	27.2
41. R41_G	*	375816.22	3777476.50	36.0
42. R42_G	*	375822.31	3777327.50	11.5
43. R43_G	*	375836.97	3777404.75	23.5
44. R44_G	*	375839.12	3777355.00	14.1
45. R45_G	*	375848.50	3777438.25	27.5
46. R46_G	*	375882.75	3777397.75	17.4

Model Results

Remarks : In search of the wind direction corresponding to the maximum concentration, only the first direction, of the directions with the same maximum concentrations, is indicated as the maximum.

* MAXIMUM HOURLY CONCENTRATIONS WITH ANY AMBIENT BACKGROUND CONCENTRATIONS (BKG) ADDED

* (MICROGRAMS/M**3)

* REC1 REC2 REC3 REC4 REC5 REC6 REC7 REC8 REC9 REC10

```
--------*-------------------------------------------------------------------------
MAX+BKG * 6703.2 4879.7 5747.6 3934.0 3248.4 4789.7 3358.2 2976.7 5520.7 10012.7
- BKG  *    0.0    0.0    0.0    0.0    0.0    0.0    0.0    0.0    0.0    0.0
--------*-------------------------------------------------------------------------
 MAX   * 6703.2 4879.7 5747.6 3934.0 3248.4 4789.7 3358.2 2976.7 5520.7 10012.7
WIND DIR*   150    153    153    153    155    153    153    155    284    289
JULIAN *   211      8      8      8    365      8      8    365      9    346
HOUR   *     7      7      7      7      7      7      7      7     18      7
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CAL3QHCR (Dated: 04244)

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JOB: 2030 NBCU Traffic Modeling, PMExh, scaled 1000x 000          RUN: CAL3QHCR RUN

        * MAXIMUM HOURLY CONCENTRATIONS WITH ANY AMBIENT BACKGROUND
CONCENTRATIONS (BKG) ADDED
        *  (MICROGRAMS/M**3)
        *   REC11  REC12  REC13  REC14  REC15  REC16  REC17  REC18  REC19  REC20
--------*-------------------------------------------------------------------------
MAX+BKG * 3685.3 8139.1 3230.6 7127.6 4792.6 8346.3 3572.6 8803.2 7050.3 5773.2
- BKG  *    0.0    0.0    0.0    0.0    0.0    0.0    0.0    0.0    0.0    0.0
--------*-------------------------------------------------------------------------
 MAX   * 3685.3 8139.1 3230.6 7127.6 4792.6 8346.3 3572.6 8803.2 7050.3 5773.2
WIND DIR*   155    286    157    291    284    287    158    295    286    157
JULIAN *   365    358    220     36      9    315    142    314    358    220
HOUR   *     7      7      7      7     18      7      7      7      7      7

        *   REC21  REC22  REC23  REC24  REC25  REC26  REC27  REC28  REC29  REC30
--------*-------------------------------------------------------------------------
MAX+BKG * 7455.3 6585.7 12148.8 5351.0 7130.5 4000.6 12860.0 4756.2 5728.6 6933.0
- BKG  *    0.0    0.0    0.0    0.0    0.0    0.0    0.0    0.0    0.0    0.0
--------*-------------------------------------------------------------------------
 MAX   * 7455.3 6585.7 12148.8 5351.0 7130.5 4000.6 12860.0 4756.2 5728.6 6933.0
WIND DIR*   298    289    153    157    155    158    153    157    287    155
JULIAN *   336    346      8    220    365    142      8    220    315    365
HOUR   *     7      7      7      7      7      7      7      7      7      7

        *   REC31  REC32  REC33  REC34  REC35  REC36  REC37  REC38  REC39  REC40
--------*-------------------------------------------------------------------------
MAX+BKG * 4034.1 13571.7 4788.4 7550.1 4073.9 14099.4 4908.6 7491.7 4115.5 5707.1
- BKG  *    0.0    0.0    0.0    0.0    0.0    0.0    0.0    0.0    0.0    0.0
--------*-------------------------------------------------------------------------
 MAX   * 4034.1 13571.7 4788.4 7550.1 4073.9 14099.4 4908.6 7491.7 4115.5 5707.1
WIND DIR*   161    155    158    157    163    157    161    158    163    163
JULIAN *   177    365    142    220    143    220    177    142    143    143
HOUR   *     7      7      7      7      7      7      7      7      7      7

        *   REC41  REC42  REC43  REC44  REC45  REC46
--------*---------------------------------------------
MAX+BKG * 3785.7 9134.6 5222.5 6943.8 4320.6 4786.7
- BKG  *    0.0    0.0    0.0    0.0    0.0    0.0
--------*---------------------------------------------
```

MAX * 3785.7 9134.6 5222.5 6943.8 4320.6 4786.7
WIND DIR* 168 163 168 168 171 172
JULIAN * 20 143 20 20 134 197
HOUR * 7 7 7 7 7 7

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THE HIGHEST CONCENTRATION OF14099.40 UG/M**3 OCCURRED AT RECEPTOR REC36.

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TIME : 17:56:34

JOB: 2030 NBCU Traffic Modeling, PMExh, scaled 1000x 000 RUN: CAL3QHCR RUN

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Output Section
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NOTES PERTAINING TO THE REPORT

1. THE HIGHEST AVERAGE IN EACH OF THE FIRST TWO COLUMNS OF EACH TABLE BELOW ARE SUFFIXED BY AN ASTERISK (*).
FOR PM OUTPUT, THERE IS ONLY ONE COLUMN AND ASTERISK FOR THE ANNUAL AVERAGE/PERIOD OF CONCERN TABLE.

2. THE NUMBERS IN PARENTHESES ARE THE JULIAN DAY AND ENDING HOUR FOR THE PRECEDING AVERAGE.

3. THE NUMBER OF CALM HOURS USED IN PRODUCING EACH AVERAGE ARE PREFIXED BY A C.

PRIMARY AND SECONDARY AVERAGES.

FIVE HIGHEST 24-HOUR END-TO-END AVERAGE CONCENTRATIONS IN MICROGRAMS/M**3
EXCLUDING AMBIENT BACKGROUND CONCENTRATIONS.

Highest Second Highest Third Highest Fourth Highest Fifth Highest
Rcptr Ending Ending Ending Ending Ending
No. Conc Day Hr Calm Conc Day Hr Calm Conc Day Hr Calm Conc Day Hr Calm Conc Day Hr
Calm

11659.24 (134,24) C 51582.95 (145,24) C 21429.06 (276,24) C 21411.00 (133,24) C 31389.01 (275,24) C 4
21171.24 (134,24) C 51064.28 (145,24) C 2 966.01 (300,24) C 5 954.75 (276,24) C 2 944.18 (275,24) C 4
31381.65 (134,24) C 51273.56 (145,24) C 21237.15 (350,24) C 41175.65 (332,24) C 41169.79 (300,24) C 5
4 728.79 (350,24) C 4 725.56 (134,24) C 5 710.18 (332,24) C 4 680.37 (145,24) C 2 674.24 (300,24) C 5
5 588.53 (134,24) C 5 551.16 (350,24) C 4 546.32 (300,24) C 5 540.15 (145,24) C 2 530.82 (332,24) C 4
61120.38 (295,24) C 61117.57 (350,24) C 41034.37 (332,24) C 4 966.38 (312,24) C 6 898.33 (134,24) C 5

7 594.96 (350,24) C 4 579.91 (295,24) C 6 577.03 (332,24) C 4 507.77 (150,24) C 2 501.93 (35,24) C 4
8 516.76 (350,24) C 4 494.89 (134,24) C 5 491.10 (332,24) C 4 473.42 (300,24) C 5 462.98 (145,24) C 2
91296.33 (295,24) C 61249.44 (350,24) C 41224.09 (312,24) C 61024.98 (332,24) C 41005.84 (358,24) C 6
102225.52 (350,24) C 42195.49 (312,24) C 61969.01 (295,24) C 61826.54 (358,24) C 61763.31 (346,24) C 7
11 904.86 (295,24) C 6 864.69 (350,24) C 4 809.86 (312,24) C 6 736.08 (332,24) C 4 679.08 (17,24) C 9
121665.68 (295,24) C 61650.08 (312,24) C 61609.43 (350,24) C 41423.21 (358,24) C 61290.89 (17,24) C 9
13 629.95 (350,24) C 4 601.54 (134,24) C 5 565.10 (332,24) C 4 544.62 (145,24) C 2 539.20 (300,24) C 5
142043.34 (350,24) C 41842.17 (312,24) C 61711.33 (134,24) C 51650.28 (346,24) C 71639.76 (314,24) C 5
151118.11 (295,24) C 61101.11 (350,24) C 41085.53 (312,24) C 6 909.33 (358,24) C 6 869.54 (17,24) C 9
161727.04 (312,24) C 61709.18 (350,24) C 41557.23 (295,24) C 61455.92 (358,24) C 61345.18 (346,24) C 7
17 806.51 (350,24) C 4 768.06 (134,24) C 5 701.71 (295,24) C 6 667.86 (332,24) C 4 659.44 (145,24) C 2
182602.69 (350,24) C 42383.12 (312,24) C 62249.20 (134,24) C 52171.08 (346,24) C 72136.67 (318,24) C 2
191438.63 (350,24) C 41421.59 (312,24) C 61388.26 (295,24) C 61247.90 (358,24) C 61128.62 (17,24) C 9
201683.52 (350,24) C 41526.68 (312,24) C 61484.98 (134,24) C 51364.85 (346,24) C 71315.77 (295,24) C 6
211884.60 (350,24) C 41722.74 (8,24) C 21710.42 (312,24) C 61674.04 (318,24) C 21629.38 (341,24) C 8
221437.61 (350,24) C 41433.33 (312,24) C 61234.60 (295,24) C 61197.27 (358,24) C 61155.33 (346,24) C 7
234318.50*(350,24) C 43981.73*(134,24) C 53905.68 (312,24) C 63795.61 (346,24) C 73580.10 (8,24) C 2
241221.94 (350,24) C 41129.72 (312,24) C 61015.99 (18,24) C 71013.69 (314,24) C 51006.53 (134,24) C 5
251495.34 (8,24) C 21493.30 (350,24) C 41362.89 (318,24) C 21349.64 (341,24) C 81329.64 (312,24) C 6
26 796.19 (350,24) C 4 743.81 (312,24) C 6 686.44 (18,24) C 7 673.02 (134,24) C 5 652.84 (295,24) C 6

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FIVE HIGHEST 24-HOUR END-TO-END AVERAGE CONCENTRATIONS IN MICROGRAMS/M**3
EXCLUDING AMBIENT BACKGROUND CONCENTRATIONS.

Highest Second Highest Third Highest Fourth Highest Fifth Highest
Rcptr Ending Ending Ending Ending Ending
No. Conc Day Hr Calm Conc Day Hr Calm Conc Day Hr Calm Conc Day Hr Calm Conc Day Hr
Calm

274134.98 (350,24) C 43826.84 (134,24) C 53739.23 (312,24) C 63646.70 (346,24) C 73532.46 (8,24) C 2
28 863.53 (341,24) C 8 859.09 (8,24) C 2 854.51 (350,24) C 4 804.74 (312,24) C 6 799.94 (18,24) C 7
291115.62 (312,24) C 61079.55 (350,24) C 4 977.71 (295,24) C 6 938.47 (358,24) C 6 854.33 (18,24) C 7
301294.68 (8,24) C 21188.78 (350,24) C 41112.43 (341,24) C 81106.82 (318,24) C 21100.01 (359,24) C 6
31 797.11 (350,24) C 4 743.19 (312,24) C 6 703.69 (18,24) C 7 693.56 (134,24) C 5 666.03 (341,24) C 8
324001.24 (350,24) C 43767.31 (134,24) C 53627.33 (312,24) C 63537.88 (346,24) C 73481.75 (8,24) C 2
33 883.47 (8,24) C 2 865.44 (341,24) C 8 817.51 (350,24) C 4 762.77 (18,24) C 7 762.09 (318,24) C 2
341420.10 (8,24) C 21379.59 (350,24) C 41274.95 (134,24) C 51210.05 (10,24) C 41209.27 (359,24) C 6
35 791.97 (350,24) C 4 733.48 (312,24) C 6 714.53 (134,24) C 5 709.93 (341,24) C 8 709.08 (18,24) C 7
363810.62 (350,24) C 43727.46 (134,24) C 53435.00 (312,24) C 63384.17 (346,24) C 73381.97 (8,24) C 2
37 881.70 (8,24) C 2 840.19 (341,24) C 8 833.24 (350,24) C 4 764.79 (134,24) C 5 760.47 (359,24) C 6
381409.90 (8,24) C 21349.93 (350,24) C 41330.13 (134,24) C 51235.55 (359,24) C 61229.17 (10,24) C 4
39 830.68 (350,24) C 4 796.30 (134,24) C 5 747.39 (312,24) C 6 736.63 (341,24) C 8 720.58 (18,24) C 7
401147.18 (350,24) C 41146.74 (134,24) C 51067.13 (8,24) C 21002.19 (312,24) C 6 986.73 (341,24) C 8
41 851.42 (350,24) C 4 832.89 (134,24) C 5 782.25 (312,24) C 6 699.63 (346,24) C 7 697.27 (18,24) C 7
422424.58 (134,24) C 52299.06 (350,24) C 42070.09 (312,24) C 62015.83 (346,24) C 72012.85 (23,24) C 2
431309.02 (134,24) C 51264.51 (350,24) C 41116.33 (312,24) C 61059.42 (23,24) C 21056.68 (346,24) C 7
441911.19 (134,24) C 51790.08 (350,24) C 41578.52 (312,24) C 61541.16 (346,24) C 71539.50 (23,24) C 2
451096.78 (134,24) C 51075.37 (350,24) C 4 970.58 (312,24) C 6 912.33 (346,24) C 7 844.32 (23,24) C 2

461371.25 (134,24) C 51300.20 (350,24) C 41161.54 (312,24) C 61131.34 (346,24) C 71067.92 (23,24) C 2

THE HIGHEST ANNUAL AVERAGE CONCENTRATIONS
IN MICROGRAMS/M**3
EXCLUDING AMBIENT BACKGROUND CONCENTRATIONS.

Receptor Number	Maximum Conc	Ending Day Hr	Calm
1	719.60	(365,24)	C 887
2	485.09	(365,24)	C 887
3	617.50	(365,24)	C 887
4	350.11	(365,24)	C 887
5	269.88	(365,24)	C 887
6	489.14	(365,24)	C 887
7	266.85	(365,24)	C 887
8	239.79	(365,24)	C 887
9	493.44	(365,24)	C 887
10	891.23	(365,24)	C 887
11	340.72	(365,24)	C 887
12	588.37	(365,24)	C 887
13	277.09	(365,24)	C 887
14	863.28	(365,24)	C 887

THE HIGHEST ANNUAL AVERAGE CONCENTRATIONS
IN MICROGRAMS/M**3
EXCLUDING AMBIENT BACKGROUND CONCENTRATIONS.

Receptor Number	Maximum Conc	Ending Day Hr	Calm
15	408.92	(365,24)	C 887
16	644.01	(365,24)	C 887
17	336.55	(365,24)	C 887
18	1110.75	(365,24)	C 887
19	523.96	(365,24)	C 887
20	693.37	(365,24)	C 887
21	814.05	(365,24)	C 887
22	537.86	(365,24)	C 887
23	2020.53*	(365,24)	C 887
24	499.86	(365,24)	C 887
25	661.27	(365,24)	C 887
26	313.66	(365,24)	C 887
27	1946.02	(365,24)	C 887
28	355.89	(365,24)	C 887
29	377.12	(365,24)	C 887
30	538.59	(365,24)	C 887
31	313.73	(365,24)	C 887
32	1883.91	(365,24)	C 887
33	345.70	(365,24)	C 887

34	615.65	(365,24) C 887
35	312.19	(365,24) C 887
36	1792.61	(365,24) C 887
37	353.69	(365,24) C 887
38	605.71	(365,24) C 887
39	328.87	(365,24) C 887
40	480.61	(365,24) C 887
41	324.61	(365,24) C 887
42	1023.86	(365,24) C 887
43	509.43	(365,24) C 887
44	759.25	(365,24) C 887
45	417.07	(365,24) C 887
46	515.46	(365,24) C 887

CALM DURATION FREQUENCY

Hours of Consecutive Calm Winds	Frequency of Occurrence	(Julian day/hour ending) of Significant Occurrences
1	483	(2, 2)(2,14)(5,20)(7, 8)(8, 2)(8,22)(9, 1)(9,11)(9,20)(9,23) (10, 2)(10, 6)(10,17)(10,22)(11, 8)(13, 2)(13, 4)(13,18)(13,23)(14, 6) (14,24)(15,10)(16, 6)(16,13)(16,20)(17, 5)(17,10)(17,13)(17,17)(18,18) (18,24)(19, 2)(19,10)(19,12)(20,18)(21, 4)(21,17)(21,23)(22, 3)(22, 6) (22,10)(24, 6)(24, 9)(25,22)(26,10)(26,23)(30, 8)(31,22)(32, 3)(32, 7) (32,20)(33, 4)(34, 6)(34,22)(34,24)(35, 4)(35, 6)(35, 8)(35,21)(36, 6) (36,18)(36,22)(37, 9)(37,23)(38, 2)(38, 6)(39, 7)(40,20)(41, 2)(41, 7) (44, 1)(45, 3)(45, 8)(45,11)(46, 3)(47, 8)(47,11)(48,21)(50, 3)(50, 7) (53, 7)(53,21)(53,24)(54, 9)(57,19)(59, 3)(59, 6)(65, 6)(65,21)(65,23) (67, 2)(67, 5)(67, 7)(70,22)(72, 2)(72, 8)(73, 4)(73, 7)(74, 2)(74, 4) (76, 2)(80, 7)(80,22)(81, 4)(81,24)(83, 4)(86, 3)(86, 5)(88, 7)(88,22) (89, 2)(89, 5)(89,19)(89,24)(90, 8)(93, 1)(94, 9)(94,22)(95, 9)(95,23) (99, 2)(101, 6)(105, 2)(106, 3)(106, 5)(106, 7)(108,21)(110, 2)(121, 1)(124, 3) (125, 7)(128, 5)(129, 4)(129,22)(132,21)(132,24)(133,10)(133,20)(133,23)(134, 6) (134,20)(135, 2)(135, 4)(135, 7)(136, 2)(137, 6)(137, 9)(137,18)(138,21)(141, 4) (141, 9)(141,24)(142, 5)(143, 2)(144, 4)(145, 4)(145, 7)(146,16)(148, 1)(148,24) (149, 4)(149,22)(151, 5)(152, 8)(153, 5)(154, 5)(154, 7)(154,10)(155, 5)(157, 6) (158, 3)(166,19)(167, 9)(170, 8)(172, 4)(173, 1)(173, 3)(173, 6)(173, 8)(174,24) (175, 5)(176, 5)(177, 4)(177,10)(178, 5)(179, 3)(179, 8)(180, 5)(180, 8)(181, 1) (181, 5)(182, 8)(184, 7)(188, 2)(189, 5)(189, 7)(190, 1)(191, 7)(192, 7)(193, 7) (195, 3)(195, 5)(196, 3)(196, 5)(196, 8)(199, 2)(199, 5)(200, 8)(202, 7)(205, 5) (206, 6)(207, 8)(208, 3)(209, 1)(209,24)(212, 5)(213, 3)(213, 6)(214, 4)(214, 8) (215, 6)(217, 8)(217,24)(218, 8)(222, 8)(222,24)(223, 4)(223, 7)(224, 2)(225, 7) (225,21)(226,23)(227, 1)(229, 5)(230, 7)(231, 2)(232,21)(232,23)(233, 2)(233, 5) (235, 8)(236, 1)(236, 4)(236, 8)(236,23)(237, 6)(238, 8)(239,22)(240,21)(241, 5) (242, 8)(243, 5)(244, 4)(245, 7)(247, 3)(247, 5)(247,22)(248, 2)(249, 9)(249,11) (250, 4)(250, 9)(250,24)(251, 6)(251, 9)(252, 2)(252, 6)(252, 9)(253, 4)(254, 5)

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                (254,22)(254,24)(255, 4)(256, 2)(256, 4)(256, 7)(257, 1)(257, 5)(257, 7)(259,19)
                (260, 4)(260,23)(261,21)(261,24)(262, 2)(262,18)(264,22)(266, 9)(267, 5)(268, 1)
                (268, 9)(269, 3)(273, 1)(273, 7)(274, 1)(274,22)(275, 2)(275,10)(276,10)(276,12)
                (277, 1)(277, 5)(277, 8)(277,18)(278, 8)(278,23)(279, 6)(279, 8)(279,24)(280, 4)
                (281, 2)(281, 5)(282, 4)(282, 7)(283, 8)(284, 1)(284, 3)(284, 5)(285,20)(286, 5)
                (286,18)(287, 2)(287, 6)(287, 8)(287,10)(287,18)(288, 2)(288, 4)(288,21)(288,23)
                (289, 9)(289,23)(290, 7)(290,23)(291, 2)(292, 4)(292,11)(294, 8)(295, 2)(295, 8)
                (295,20)(295,24)(297, 5)(298, 7)(298, 9)(299,20)(299,23)(300, 4)(300, 6)(300,22)
                (301, 7)(301,22)(302, 4)(303,19)(304, 9)(304,17)(305,22)(306, 2)(306, 4)(306, 6)
                (306,10)(306,12)(307, 9)(307,18)(307,20)(308, 7)(308,10)(308,21)(308,23)(310,20)
                (310,23)(311,11)(312, 1)(312, 5)(312, 7)(312, 9)(312,22)(313, 7)(314, 2)(314, 9)
                (314,12)(314,19)(314,24)(315,22)(317,19)(318, 8)(318,18)(319, 7)(319,19)(320, 6)
                (321, 7)(321,21)(322, 1)(322,20)(323, 4)(324, 2)(324,19)(324,24)(326, 4)(326, 9)
                (326,20)(326,23)(327,10)(328, 7)(329, 1)(330, 4)(331, 1)(331,13)(333,19)(334,22)
                (335, 3)(335,22)(336, 1)(336, 3)(336,22)(337, 1)(337, 5)(337, 7)(337,17)(338, 4)
                (338, 8)(338,21)(338,24)(339,19)(339,21)(341,10)(341,20)(341,23)(342, 3)(342,12)
                (342,17)(342,23)(343, 1)(343, 7)(343,10)(343,19)(344, 3)(344, 6)(344,10)(344,12)
                (344,24)(345, 7)(345, 9)(345,11)(345,15)(345,21)(346,12)(347,23)(348, 5)(348,10)
                (348,17)(349, 2)(349, 7)(349,10)(349,19)(349,21)(349,24)(350, 3)(351, 5)(351,10)
                (352, 3)(352, 6)(352, 8)(353, 5)(353, 8)(353,19)(353,21)(353,23)(354, 6)(354,15)
                (355, 8)(357,20)(358,16)(359, 5)(359, 8)(359,22)(360,10)(360,17)(361,19)(362,24)
                (363, 2)(363, 4)(363,18)
     2       99  ( 7, 3)( 14,20)( 15, 5)( 16, 9)( 17,23)( 18, 2)( 19,22)( 23,23)( 25, 8)( 30, 5)
                ( 34, 9)( 37, 7)( 49,23)( 54, 4)( 58, 9)( 66,24)( 67,23)( 68, 2)( 68, 5)( 74,23)
                ( 76, 7)( 82, 6)( 84, 6)( 91, 1)( 93, 6)(127, 7)(129, 1)(143, 9)(143,24)(144, 8)
                (150, 5)(168, 3)(170, 6)(171, 6)(171, 9)(179, 6)(184, 5)(186, 5)(193, 1)(194, 4)
                (215,12)(227,10)(238, 6)(239, 3)(239, 9)(242, 5)(254, 1)(254, 8)(255, 9)(258, 1)
                (261, 4)(262, 6)(262,22)(263, 8)(264, 9)(268, 6)(271, 7)(275, 6)(280,10)(282,23)
                (286, 1)(287,23)(293, 8)(295, 6)(296, 3)(299, 5)(300, 9)(305,10)(307, 1)(311,23)
                (317, 5)(319,23)(322, 7)(323,18)(323,24)(324,10)(325, 4)(325,10)(328,10)(333, 1)
                (333, 6)(334, 8)(334,20)(339, 4)(339,10)(341, 4)(346,24)(348,22)(349, 5)(351,22)
                (352,18)(354,10)(354,19)(358, 9)(358,20)(360, 1)(361, 1)(363, 7)(365, 6)
     3       34  ( 12,21)( 17, 3)( 18,10)( 25,20)( 74, 8)( 88, 2)( 90, 4)( 91, 7)( 94, 7)( 95, 5)
                (134, 3)(137, 2)(169, 8)(222, 5)(228, 9)(251, 4)(258, 8)(270, 7)(278, 1)(279, 4)
                (288, 8)(311, 7)(313, 2)(315, 6)(319, 3)(323, 2)(323,10)(332,21)(337,24)(341, 8)
                (343, 5)(344,22)(350,24)(359, 2)
     4       12  ( 9, 7)( 39, 5)( 42, 4)( 49, 8)(131, 5)(141, 2)(152, 5)(201, 9)(278, 6)(292, 2)
                (313,24)(346, 4)
     5        3  ( 34, 3)(234, 8)(362, 6)
     6        2  (146, 7)(240, 8)
     8        2  (305, 6)(340, 6)
    13        1  ( 5,13)

Program terminated normally
```

CAL3QHCR (Dated: 04244)

DATE : 10/26/11
TIME : 17:57:13

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JOB: 2030 NBCU Traffic Modeling, TOGDExh, scaled 1000x 000

RUN: CAL3QHCR RUN

General Information

Run start date: 1/ 1/81 Julian: 1
end date: 12/31/81 Julian: 365

A Tier 2 approach was used for input data preparation.

The MODE flag has been set to C for calculating CO averages.

Ambient background concentrations are excluded from the averages below.

Site & Meteorological Constants

VS = 0.0 CM/S VD = 0.0 CM/S Z0 = 44. CM ATIM = 60.

Met. Sfc. Sta. Id & Yr = 51100 81
Upper Air Sta. Id & Yr = 99999 81

Urban mixing heights were processed.

In 1981, Julian day 1 is a Thursday.

The patterns from the input file
have been assigned as follows:

Pattern # 1 is assigned to Monday.
Pattern # 1 is assigned to Tuesday.
Pattern # 1 is assigned to Wednesday.
Pattern # 1 is assigned to Thursday.
Pattern # 1 is assigned to Friday.
Pattern # 1 is assigned to Saturday.
Pattern # 1 is assigned to Sunday.

Link Data Constants - (Variable data in *.LNK file)

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	LENGTH (M)	BRG (DEG)	TYPE	H (M)	W (M)	NLANES
1. N1	376047.00	3776911.00	375971.00	3777044.00	153.	330.	AG	8.0	24.0	
2. N2	375971.00	3777044.00	375801.00	3777259.00	274.	322.	AG	10.0	24.0	

3. N3	* 375801.00	3777259.00	375674.00	3777409.00 *	197.	320.	AG	4.0	24.0
4. N4	* 375674.00	3777409.00	375550.00	3777560.00 *	195.	321.	AG	2.0	24.0
5. N5	* 375550.00	3777560.00	375455.00	3777664.00 *	141.	318.	AG	1.0	24.0
6. N6	* 375455.00	3777664.00	375345.00	3777743.00 *	135.	306.	AG	-5.0	24.0
7. N7	* 375345.00	3777743.00	375233.00	3777792.00 *	122.	294.	AG	-7.0	24.0

CAL3QHCR (Dated: 04244)

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JOB: 2030 NBCU Traffic Modeling, TOGDExh, scaled 1000x 000

RUN: CAL3QHCR RUN

Link Data Constants - (Variable data in *.LNK file)

LINK DESCRIPTION *	X1	Y1	X2	Y2 *	LENGTH (M)	BRG (DEG)	TYPE	H (M)	W (M)	NLANES
8. N8 *	375233.00	3777792.00	374980.00	3777867.00 *	264.	287.	AG	-8.0	24.0	
9. S9 *	374975.00	3777837.00	375287.00	3777738.00 *	327.	108.	AG	-10.0	24.0	
10. S10 *	375287.00	3777738.00	375387.00	3777685.00 *	113.	118.	AG	-7.0	24.0	
11. S11 *	375387.00	3777685.00	375483.00	3777603.00 *	126.	131.	AG	-3.0	24.0	
12. S12 *	375483.00	3777603.00	375786.00	3777241.00 *	472.	140.	AG	2.0	24.0	
13. S13 *	375786.00	3777241.00	375946.00	3777042.00 *	255.	141.	AG	9.0	24.0	
14. S14 *	375946.00	3777042.00	376027.00	3776900.00 *	163.	150.	AG	8.0	24.0	

Receptor Data

RECEPTOR *	X	Y	Z
1. R1_G *	375432.56	3777792.75	8.8
2. R2_G *	375465.00	3777807.00	22.2
3. R3_G *	375473.06	3777763.50	19.3
4. R4_G *	375505.50	3777777.75	36.0
5. R5_G *	375506.47	3777814.50	43.5
6. R6_G *	375513.41	3777734.00	29.2
7. R7_G *	375544.47	3777746.50	44.8
8. R8_G *	375546.94	3777785.25	47.7
9. R9_G *	375547.78	3777697.75	29.9
10. R10_G *	375564.97	3777633.75	16.9
11. R11_G *	375578.22	3777709.50	39.2
12. R12_G *	375581.53	3777660.75	26.8
13. R13_G *	375582.44	3777750.25	41.8
14. R14_G *	375598.53	3777596.75	15.7
15. R15_G *	375611.97	3777672.75	34.1
16. R16_G *	375615.25	3777624.00	23.0
17. R17_G *	375616.19	3777713.25	35.0
18. R18_G *	375630.22	3777558.00	10.2

19. R19_G	*	375645.47	3777635.50	26.9
20. R20_G	*	375647.19	3777585.50	17.8
21. R21_G	*	375661.94	3777519.50	17.5
22. R22_G	*	375677.16	3777597.00	25.0
23. R23_G	*	375677.72	3777452.00	3.4
24. R24_G	*	375678.88	3777546.75	26.6
25. R25_G	*	375693.62	3777480.75	21.2
26. R26_G	*	375708.88	3777558.25	37.5
27. R27_G	*	375709.66	3777413.50	4.0

JOB: 2030 NBCU Traffic Modeling, TOGDExh, scaled 1000x 000 RUN: CAL3QHCR RUN

Receptor Data

RECEPTOR	*	COORDINATES (M) X	Y	Z
28. R28_G	*	375710.59	3777508.25	34.8
29. R29_G	*	375724.62	3777587.25	35.9
30. R30_G	*	375725.44	3777442.25	24.9
31. R31_G	*	375740.59	3777519.50	37.7
32. R32_G	*	375741.94	3777375.50	4.8
33. R33_G	*	375742.31	3777469.50	35.3
34. R34_G	*	375757.72	3777404.00	22.4
35. R35_G	*	375772.38	3777481.00	37.9
36. R36_G	*	375774.25	3777337.25	6.0
37. R37_G	*	375774.56	3777431.25	34.3
38. R38_G	*	375790.03	3777365.75	22.8
39. R39_G	*	375804.66	3777442.75	36.2
40. R40_G	*	375806.84	3777393.00	27.2
41. R41_G	*	375816.22	3777476.50	36.0
42. R42_G	*	375822.31	3777327.50	11.5
43. R43_G	*	375836.97	3777404.75	23.5
44. R44_G	*	375839.12	3777355.00	14.1
45. R45_G	*	375848.50	3777438.25	27.5
46. R46_G	*	375882.75	3777397.75	17.4

Model Results

Remarks : In search of the wind direction corresponding
to the maximum concentration, only the first
direction, of the directions with the same maximum
concentrations, is indicated as the maximum.

* MAXIMUM HOURLY CONCENTRATIONS WITH ANY AMBIENT BACKGROUND CONCENTRATIONS (BKG) ADDED
* (PPM)
* REC1 REC2 REC3 REC4 REC5 REC6 REC7 REC8 REC9 REC10

```
--------*-----------------------------------------------------------------------------
MAX+BKG *    6.5    5.1    6.0    4.3    3.7    5.3    4.1    3.6    5.3    8.4
- BKG  *    0.0    0.0    0.0    0.0    0.0    0.0    0.0    0.0    0.0    0.0
--------*-----------------------------------------------------------------------------
 MAX   *    6.5    5.1    6.0    4.3    3.7    5.3    4.1    3.6    5.3    8.4
WIND DIR*    149    150    150    150    150    150    153    153    153    289
JULIAN *    248    211    211    211    211    211      8      8      8    296
HOUR   *      7      7      7      7      7      7      7      7      7      7

                          CAL3QHCR (Dated: 04244)

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JOB: 2030 NBCU Traffic Modeling, TOGDExh, scaled 1000x 000        RUN: CAL3QHCR RUN

       * MAXIMUM HOURLY CONCENTRATIONS WITH ANY AMBIENT BACKGROUND
CONCENTRATIONS (BKG) ADDED
       *      (PPM)
       *  REC11  REC12  REC13  REC14  REC15  REC16  REC17  REC18  REC19  REC20
--------*-----------------------------------------------------------------------------
MAX+BKG *    4.4    6.9    4.1    7.6    4.9    7.1    4.4    8.5    6.1    7.0
- BKG  *    0.0    0.0    0.0    0.0    0.0    0.0    0.0    0.0    0.0    0.0
--------*-----------------------------------------------------------------------------
 MAX   *    4.4    6.9    4.1    7.6    4.9    7.1    4.4    8.5    6.1    7.0
WIND DIR*    153    284    155    150    155    287    158    153    286    155
JULIAN *      8    324    365    211    365    315    142      8    348    365
HOUR   *      7      7      7      7      7      7      7      7      7      7

       *  REC21  REC22  REC23  REC24  REC25  REC26  REC27  REC28  REC29  REC30
--------*-----------------------------------------------------------------------------
MAX+BKG *    8.7    6.0   13.4    6.8    9.0    5.3   14.9    6.4    5.0    9.1
- BKG  *    0.0    0.0    0.0    0.0    0.0    0.0    0.0    0.0    0.0    0.0
--------*-----------------------------------------------------------------------------
 MAX   *    8.7    6.0   13.4    6.8    9.0    5.3   14.9    6.4    5.0    9.1
WIND DIR*    153    158    149    155    153    158    150    157    163    153
JULIAN *      8    142    248    365      8    142    211    220    143      8
HOUR   *      7      7      7      7      7      7      7      7      7      7

       *  REC31  REC32  REC33  REC34  REC35  REC36  REC37  REC38  REC39  REC40
--------*-----------------------------------------------------------------------------
MAX+BKG *    5.5   16.7    6.6   10.3    5.7   18.6    6.8   10.5    5.8    8.0
- BKG  *    0.0    0.0    0.0    0.0    0.0    0.0    0.0    0.0    0.0    0.0
--------*-----------------------------------------------------------------------------
 MAX   *    5.5   16.7    6.6   10.3    5.7   18.6    6.8   10.5    5.8    8.0
WIND DIR*    161    153    158    158    163    155    161    161    163    163
JULIAN *    177      8    142    142    143    365    177    177    143    143
HOUR   *      7      7      7      7      7      7      7      7      7      7

       *  REC41  REC42  REC43  REC44  REC45  REC46
--------*------------------------------------------
MAX+BKG *    5.4   12.7    7.3    9.7    6.1    6.8
- BKG  *    0.0    0.0    0.0    0.0    0.0    0.0
--------*------------------------------------------
```

MAX *	5.4	12.7	7.3	9.7	6.1	6.8
WIND DIR*	168	163	168	168	172	176
JULIAN *	20	143	20	20	197	23
HOUR *	7	7	7	7	7	7

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JOB: 2030 NBCU Traffic Modeling, TOGDExh, scaled 1000x 000 RUN: CAL3QHCR RUN

THE HIGHEST CONCENTRATION OF 18.60 PPM OCCURRED AT RECEPTOR REC36.

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JOB: 2030 NBCU Traffic Modeling, TOGDExh, scaled 1000x 000 RUN: CAL3QHCR RUN

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Output Section
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NOTES PERTAINING TO THE REPORT

1. THE HIGHEST AVERAGE IN EACH OF THE FIRST TWO COLUMNS OF EACH TABLE BELOW ARE SUFFIXED BY AN ASTERISK (*).
FOR PM OUTPUT, THERE IS ONLY ONE COLUMN AND ASTERISK FOR THE ANNUAL AVERAGE/PERIOD OF CONCERN TABLE.

2. THE NUMBERS IN PARENTHESES ARE THE JULIAN DAY AND ENDING HOUR FOR THE PRECEDING AVERAGE.

3. THE NUMBER OF CALM HOURS USED IN PRODUCING EACH AVERAGE ARE PREFIXED BY A C.

PRIMARY AVERAGES.

MAXIMUM 8-HOUR RUNNING NONOVERLAPPING AVERAGE CONCENTRATIONS
IN PARTS PER MILLION (PPM),
EXCLUDING AMBIENT BACKGROUND CONCENTRATIONS.

Receptor Number	Highest Conc	Ending Day Hr	Calm	Second highest Conc	Ending Day Hr	Calm
1	2.13	(86,10)	C 2	1.87	(150, 8)	C 2
2	1.57	(86, 8)	C 2	1.39	(133, 7)	C 1
3	1.88	(86, 8)	C 2	1.63	(133, 7)	C 1
4	1.18	(86, 8)	C 2	1.07	(133, 7)	C 1
5	0.88	(86, 8)	C 2	0.83	(133, 7)	C 1
6	1.55	(86, 8)	C 2	1.30	(133, 7)	C 1

7	0.90	(86, 8) C 2	0.86	(133, 7) C 1
8	0.78	(150, 8) C 2	0.75	(86, 8) C 2
9	1.55	(286, 8) C 2	1.52	(86, 8) C 2
10	3.10	(296, 8) C 2	3.00	(58,10) C 2
11	1.05	(86, 8) C 2	1.02	(255, 7) C 2
12	2.48	(296, 8) C 2	2.25	(58, 9) C 2
13	0.87	(150, 8) C 2	0.80	(86, 8) C 2
14	2.40	(86, 8) C 2	2.38	(58,11) C 2
15	1.40	(295,11) C 3	1.40	(296, 8) C 2
16	2.53	(296, 8) C 2	2.42	(58,10) C 2
17	1.02	(177,10) C 2	1.00	(150, 8) C 2
18	2.93	(58,11) C 2	2.90	(296, 8) C 2
19	2.15	(296, 8) C 2	1.93	(58, 9) C 2
20	1.92	(58,11) C 2	1.90	(296, 8) C 2
21	2.64	(8,11) C 0	2.32	(86, 8) C 2
22	2.02	(296, 8) C 2	1.90	(58, 9) C 2
23	5.04	(8,11) C 0	4.73	(86, 8) C 2
24	1.59	(8,11) C 0	1.58	(58,11) C 2

CAL3QHCR (Dated: 04244)

DATE : 10/26/11

TIME : 17:57:32

JOB: 2030 NBCU Traffic Modeling, TOGDExh, sca RUN: CAL3QHCR RUN

MAXIMUM 8-HOUR RUNNING NONOVERLAPPING AVERAGE CONCENTRATIONS
IN PARTS PER MILLION (PPM),
EXCLUDING AMBIENT BACKGROUND CONCENTRATIONS.

Receptor Number	Highest Conc	Ending Day Hr	Calm	Second highest Conc	Ending Day Hr	Calm
25	2.48	(8,11)	C 0	2.15	(86, 8)	C 2
26	1.17	(150, 8)	C 2	1.13	(177,10)	C 2
27	5.19	(8,11)	C 0	4.75	(86, 8)	C 2
28	1.43	(8,11)	C 0	1.35	(150, 8)	C 2
29	1.65	(296, 8)	C 2	1.55	(58, 9)	C 2
30	2.31	(8,11)	C 0	2.02	(150, 8)	C 2
31	1.22	(143, 8)	C 2	1.20	(150, 8)	C 2
32	5.34	(8,11)	C 0	4.78*	(86, 8)	C 2
33	1.50	(8,11)	C 0	1.42	(150, 8)	C 2
34	2.50	(8,11)	C 0	2.27	(150, 8)	C 2
35	1.30	(143, 8)	C 2	1.22	(177,10)	C 2
36	5.36*	(8,11)	C 0	4.62	(86, 8)	C 2
37	1.49	(8,11)	C 0	1.47	(150, 8)	C 2
38	2.44	(8,11)	C 0	2.35	(150, 8)	C 2
39	1.35	(143, 8)	C 2	1.27	(177,10)	C 2
40	1.85	(143, 8)	C 2	1.78	(177,10)	C 2
41	1.20	(134,10)	C 2	1.18	(143, 8)	C 2
42	3.20	(177,10)	C 2	3.18	(143, 8)	C 2
43	1.83	(134,10)	C 2	1.72	(143, 8)	C 2
44	2.58	(134,10)	C 2	2.42	(143, 8)	C 2
45	1.55	(134,10)	C 2	1.40	(249,12)	C 2

46 1.85 (134,10) C 2 1.62 (249,12) C 2

FIVE HIGHEST 1-HOUR END-TO-END AVERAGE CONCENTRATIONS IN PARTS PER MILLION
EXCLUDING AMBIENT BACKGROUND CONCENTRATIONS.

Rcptr No.	Highest Ending Conc	Day Hr	Calm	Second Highest Ending Conc	Day Hr	Calm	Third Highest Ending Conc	Day Hr	Calm	Fourth Highest Ending Conc	Day Hr	Calm	Fifth Highest Ending Conc	Day Hr	Calm
1	6.50	(248, 7)	C 0	6.40	(69, 7)	C 0	6.40	(211, 7)	C 0	6.30	(332, 7)	C 0	6.10	(8, 7)	C 0
2	5.10	(211, 7)	C 0	5.00	(248, 7)	C 0	5.00	(332, 7)	C 0	4.90	(8, 7)	C 0	4.70	(365, 7)	C 0
3	6.00	(211, 7)	C 0	5.80	(248, 7)	C 0	5.70	(332, 7)	C 0	5.50	(8, 7)	C 0	5.50	(69, 7)	C 0
4	4.30	(211, 7)	C 0	4.30	(248, 7)	C 0	4.30	(332, 7)	C 0	4.30	(8, 7)	C 0	4.10	(365, 7)	C 0
5	3.70	(211, 7)	C 0	3.60	(8, 7)	C 0	3.50	(365, 7)	C 0	3.40	(248, 7)	C 0	3.40	(332, 7)	C 0
6	5.30	(211, 7)	C 0	5.20	(248, 7)	C 0	5.20	(332, 7)	C 0	4.90	(8, 7)	C 0	4.70	(365, 7)	C 0
7	4.10	(8, 7)	C 0	4.00	(211, 7)	C 0	3.80	(248, 7)	C 0	3.80	(332, 7)	C 0	3.80	(365, 7)	C 0
8	3.60	(8, 7)	C 0	3.50	(365, 7)	C 0	3.40	(220, 7)	C 0	3.20	(211, 7)	C 0	3.10	(142, 7)	C 0
9	5.30	(8, 7)	C 0	5.30	(211, 7)	C 0	5.20	(248, 7)	C 0	5.20	(332, 7)	C 0	5.00	(365, 7)	C 0
10	8.40	(296, 7)	C 0	8.30	(346, 7)	C 0	8.20	(315, 7)	C 0	8.10	(307, 7)	C 0	8.10	(358, 7)	C 0
11	4.40	(8, 7)	C 0	4.30	(365, 7)	C 0	4.10	(211, 7)	C 0	4.10	(220, 7)	C 0	3.90	(248, 7)	C 0
12	6.90	(324, 7)	C 0	6.80	(62, 7)	C 0	6.80	(307, 7)	C 0	6.80	(358, 7)	C 0	6.70	(348, 7)	C 0
13	4.10	(365, 7)	C 0	3.90	(8, 7)	C 0	3.90	(220, 7)	C 0	3.70	(142, 7)	C 0	3.30	(211, 7)	C 0

FIVE HIGHEST 1-HOUR END-TO-END AVERAGE CONCENTRATIONS IN PARTS PER MILLION
EXCLUDING AMBIENT BACKGROUND CONCENTRATIONS.

Rcptr No.	Highest Ending Conc	Day Hr	Calm	Second Highest Ending Conc	Day Hr	Calm	Third Highest Ending Conc	Day Hr	Calm	Fourth Highest Ending Conc	Day Hr	Calm	Fifth Highest Ending Conc	Day Hr	Calm
14	7.60	(211, 7)	C 0	7.50	(8, 7)	C 0	7.30	(248, 7)	C 0	7.30	(332, 7)	C 0	7.30	(365, 7)	C 0
15	4.90	(365, 7)	C 0	4.80	(220, 7)	C 0	4.80	(8, 7)	C 0	4.60	(142, 7)	C 0	4.30	(211, 7)	C 0
16	7.10	(315, 7)	C 0	7.10	(346, 7)	C 0	7.10	(348, 7)	C 0	7.10	(358, 7)	C 0	7.00	(296, 7)	C 0
17	4.40	(142, 7)	C 0	4.30	(220, 7)	C 0	4.30	(365, 7)	C 0	4.10	(8, 7)	C 0	4.10	(177, 7)	C 0
18	8.50	(8, 7)	C 0	8.40	(211, 7)	C 0	8.30	(365, 7)	C 0	8.20	(248, 7)	C 0	8.10	(332, 7)	C 0
19	6.10	(348, 7)	C 0	6.00	(358, 7)	C 0	5.90	(307, 7)	C 0	5.90	(315, 7)	C 0	5.90	(62, 7)	C 0
20	7.00	(365, 7)	C 0	6.80	(8, 7)	C 0	6.80	(220, 7)	C 0	6.60	(142, 7)	C 0	6.20	(211, 7)	C 0
21	8.70	(8, 7)	C 0	8.40	(211, 7)	C 0	8.40	(365, 7)	C 0	8.10	(248, 7)	C 0	8.00	(220, 7)	C 0
22	6.00	(142, 7)	C 0	6.00	(220, 7)	C 0	5.80	(177, 7)	C 0	5.80	(365, 7)	C 0	5.60	(296, 7)	C 0
23	13.40	(248, 7)	C 0	13.30	(332, 7)	C 0	13.30	(211, 7)	C 0	13.00	(8, 7)	C 0	12.60	(69, 7)	C 0
24	6.80	(365, 7)	C 0	6.70	(8, 7)	C 0	6.70	(220, 7)	C 0	6.60	(142, 7)	C 0	5.90	(211, 7)	C 0
25	9.00	(8, 7)	C 0	8.90	(365, 7)	C 0	8.50	(220, 7)	C 0	8.40	(211, 7)	C 0	8.20	(248, 7)	C 0
26	5.30	(142, 7)	C 0	5.30	(177, 7)	C 0	5.20	(220, 7)	C 0	4.90	(365, 7)	C 0	4.80	(143, 7)	C 0
27	14.90	(211, 7)	C 0	14.80	(8, 7)	C 0	14.60	(248, 7)	C 0	14.60	(332, 7)	C 0	14.40	(365, 7)	C 0
28	6.40	(220, 7)	C 0	6.20	(142, 7)	C 0	6.20	(365, 7)	C 0	6.00	(8, 7)	C 0	5.70	(177, 7)	C 0
29	5.00	(143, 7)	C 0	5.00	(177, 7)	C 0	4.90	(315, 7)	C 0	4.90	(348, 7)	C 0	4.90	(358, 7)	C 0

30 9.10 (8, 7) C 0 9.10 (365, 7) C 0 9.00 (220, 7) C 0 8.70 (142, 7) C 0 8.40 (211, 7) C 0
31 5.50 (177, 7) C 0 5.40 (142, 7) C 0 5.30 (143, 7) C 0 5.20 (220, 7) C 0 4.70 (365, 7) C 0
32 16.70 (8, 7) C 0 16.60 (365, 7) C 0 16.20 (220, 7) C 0 16.10 (211, 7) C 0 15.70 (248, 7) C 0
33 6.60 (142, 7) C 0 6.40 (220, 7) C 0 6.30 (177, 7) C 0 6.20 (365, 7) C 0 6.00 (143, 7) C 0
34 10.30 (142, 7) C 0 10.30 (220, 7) C 0 10.00 (365, 7) C 0 9.80 (177, 7) C 0 9.70 (8, 7) C 0
35 5.70 (143, 7) C 0 5.50 (177, 7) C 0 5.10 (142, 7) C 0 5.00 (20, 7) C 0 4.80 (220, 7) C 0
36 18.60*(365, 7) C 0 18.60*(220, 7) C 0 18.50 (142, 7) C 0 18.00 (8, 7) C 0 17.30 (177, 7) C 0
37 6.80 (177, 7) C 0 6.70 (142, 7) C 0 6.70 (143, 7) C 0 6.40 (220, 7) C 0 6.00 (365, 7) C 0
38 10.50 (177, 7) C 0 10.30 (142, 7) C 0 10.20 (220, 7) C 0 10.10 (143, 7) C 0 9.70 (365, 7) C 0
39 5.80 (143, 7) C 0 5.60 (20, 7) C 0 5.50 (177, 7) C 0 5.10 (134, 7) C 0 5.00 (197, 7) C 0
40 8.00 (143, 7) C 0 7.80 (177, 7) C 0 7.30 (20, 7) C 0 7.30 (142, 7) C 0 6.90 (220, 7) C 0
41 5.40 (20, 7) C 0 5.00 (134, 7) C 0 4.90 (197, 7) C 0 4.80 (143, 7) C 0 4.50 (23, 7) C 0
42 12.70 (143, 7) C 0 12.50 (177, 7) C 0 12.00 (142, 7) C 0 11.90 (20, 7) C 0 11.60 (134, 7) C 0
43 7.30 (20, 7) C 0 7.20 (134, 7) C 0 7.10 (197, 7) C 0 6.70 (143, 7) C 0 6.50 (23, 7) C 0
44 9.70 (20, 7) C 0 9.50 (134, 7) C 0 9.40 (143, 7) C 0 9.30 (197, 7) C 0 8.90 (177, 7) C 0
45 6.10 (197, 7) C 0 6.00 (20, 7) C 0 6.00 (134, 7) C 0 5.70 (23, 7) C 0 5.40 (214, 7) C 0
46 6.80 (23, 7) C 0 6.60 (197, 7) C 0 6.60 (134, 7) C 0 6.60 (214, 7) C 0 6.60 (265, 7) C 0

CALM DURATION FREQUENCY

Hours of Consecutive Calm Winds	Frequency of Occurrence	(Julian day/hour ending) of Significant Occurrences
1	483	(2, 2)(2,14)(5,20)(7, 8)(8, 2)(8,22)(9, 1)(9,11)(9,20)(9,23)
		(10, 2)(10, 6)(10,17)(10,22)(11, 8)(13, 2)(13, 4)(13,18)(13,23)(14, 6)
		(14,24)(15,10)(16, 6)(16,13)(16,20)(17, 5)(17,10)(17,13)(17,17)(18,18)
		(18,24)(19, 2)(19,10)(19,12)(20,18)(21, 4)(21,17)(21,23)(22, 3)(22, 6)
		(22,10)(24, 6)(24, 9)(25,22)(26,10)(26,23)(30, 8)(31,22)(32, 3)(32, 7)
		(32,20)(33, 4)(34, 6)(34,22)(34,24)(35, 4)(35, 6)(35, 8)(35,21)(36, 6)
		(36,18)(36,22)(37, 9)(37,23)(38, 2)(38, 6)(39, 7)(40,20)(41, 2)(41, 7)
		(44, 1)(45, 3)(45, 8)(45,11)(46, 3)(47, 8)(47,11)(48,21)(50, 3)(50, 7)
		(53, 7)(53,21)(53,24)(54, 9)(57,19)(59, 3)(59, 6)(65, 6)(65,21)(65,23)
		(67, 2)(67, 5)(67, 7)(70,22)(72, 2)(72, 8)(73, 4)(73, 7)(74, 2)(74, 4)
		(76, 2)(80, 7)(80,22)(81, 4)(81,24)(83, 4)(86, 3)(86, 5)(88, 7)(88,22)
		(89, 2)(89, 5)(89,19)(89,24)(90, 8)(93, 1)(94, 9)(94,22)(95, 9)(95,23)
		(99, 2)(101, 6)(105, 2)(106, 3)(106, 5)(106, 7)(108,21)(110, 2)(121, 1)(124, 3)
		(125, 7)(128, 5)(129, 4)(129,22)(132,21)(132,24)(133,10)(133,20)(133,23)(134, 6)
		(134,20)(135, 2)(135, 4)(135, 7)(136, 2)(137, 6)(137, 9)(137,18)(138,21)(141, 4)
		(141, 9)(141,24)(142, 5)(143, 2)(144, 4)(145, 4)(145, 7)(146,16)(148, 1)(148,24)
		(149, 4)(149,22)(151, 5)(152, 8)(153, 5)(154, 5)(154, 7)(154,10)(155, 5)(157, 6)
		(158, 3)(166,19)(167, 9)(170, 8)(172, 4)(173, 1)(173, 3)(173, 6)(173, 8)(174,24)
		(175, 5)(176, 5)(177, 4)(177,10)(178, 5)(179, 3)(179, 8)(180, 5)(180, 8)(181, 1)
		(181, 5)(182, 8)(184, 7)(188, 2)(189, 5)(189, 7)(190, 1)(191, 7)(192, 7)(193, 7)
		(195, 3)(195, 5)(196, 3)(196, 5)(196, 8)(199, 2)(199, 5)(200, 8)(202, 7)(205, 5)
		(206, 6)(207, 8)(208, 3)(209, 1)(209,24)(212, 5)(213, 3)(213, 6)(214, 4)(214, 8)
		(215, 6)(217, 8)(217,24)(218, 8)(222, 8)(222,24)(223, 4)(223, 7)(224, 2)(225, 7)

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             (225,21)(226,23)(227, 1)(229, 5)(230, 7)(231, 2)(232,21)(232,23)(233, 2)(233, 5)
             (235, 8)(236, 1)(236, 4)(236, 8)(236,23)(237, 6)(238, 8)(239,22)(240,21)(241, 5)
             (242, 8)(243, 5)(244, 4)(245, 7)(247, 3)(247, 5)(247,22)(248, 2)(249, 9)(249,11)
             (250, 4)(250, 9)(250,24)(251, 6)(251, 9)(252, 2)(252, 6)(252, 9)(253, 4)(254, 5)
             (254,22)(254,24)(255, 4)(256, 2)(256, 4)(256, 7)(257, 1)(257, 5)(257, 7)(259,19)
             (260, 4)(260,23)(261,21)(261,24)(262, 2)(262,18)(264,22)(266, 9)(267, 5)(268, 1)
             (268, 9)(269, 3)(273, 1)(273, 7)(274, 1)(274,22)(275, 2)(275,10)(276,10)(276,12)
             (277, 1)(277, 5)(277, 8)(277,18)(278, 8)(278,23)(279, 6)(279, 8)(279,24)(280, 4)
             (281, 2)(281, 5)(282, 4)(282, 7)(283, 8)(284, 1)(284, 3)(284, 5)(285,20)(286, 5)
             (286,18)(287, 2)(287, 6)(287, 8)(287,10)(287,18)(288, 2)(288, 4)(288,21)(288,23)
             (289, 9)(289,23)(290, 7)(290,23)(291, 2)(292, 4)(292,11)(294, 8)(295, 2)(295, 8)
             (295,20)(295,24)(297, 5)(298, 7)(298, 9)(299,20)(299,23)(300, 4)(300, 6)(300,22)
             (301, 7)(301,22)(302, 4)(303,19)(304, 9)(304,17)(305,22)(306, 2)(306, 4)(306, 6)
             (306,10)(306,12)(307, 9)(307,18)(307,20)(308, 7)(308,10)(308,21)(308,23)(310,20)
             (310,23)(311,11)(312, 1)(312, 5)(312, 7)(312, 9)(312,22)(313, 7)(314, 2)(314, 9)
             (314,12)(314,19)(314,24)(315,22)(317,19)(318, 8)(318,18)(319, 7)(319,19)(320, 6)
             (321, 7)(321,21)(322, 1)(322,20)(323, 4)(324, 2)(324,19)(324,24)(326, 4)(326, 9)
             (326,20)(326,23)(327,10)(328, 7)(329, 1)(330, 4)(331, 1)(331,13)(333,19)(334,22)
             (335, 3)(335,22)(336, 1)(336, 3)(336,22)(337, 1)(337, 5)(337, 7)(337,17)(338, 4)
             (338, 8)(338,21)(338,24)(339,19)(339,21)(341,10)(341,20)(341,23)(342, 3)(342,12)
             (342,17)(342,23)(343, 1)(343, 7)(343,10)(343,19)(344, 3)(344, 6)(344,10)(344,12)
             (344,24)(345, 7)(345, 9)(345,11)(345,15)(345,21)(346,12)(347,23)(348, 5)(348,10)
             (348,17)(349, 2)(349, 7)(349,10)(349,19)(349,21)(349,24)(350, 3)(351, 5)(351,10)
             (352, 3)(352, 6)(352, 8)(353, 5)(353, 8)(353,19)(353,21)(353,23)(354, 6)(354,15)
             (355, 8)(357,20)(358,16)(359, 5)(359, 8)(359,22)(360,10)(360,17)(361,19)(362,24)
             (363, 2)(363, 4)(363,18)
  2     99    ( 7, 3)( 14,20)( 15, 5)( 16, 9)( 17,23)( 18, 2)( 19,22)( 23,23)( 25, 8)( 30, 5)
             ( 34, 9)( 37, 7)( 49,23)( 54, 4)( 58, 9)( 66,24)( 67,23)( 68, 2)( 68, 5)( 74,23)
             ( 76, 7)( 82, 6)( 84, 6)( 91, 1)( 93, 6)(127, 7)(129, 1)(143, 9)(143,24)(144, 8)
             (150, 5)(168, 3)(170, 6)(171, 6)(171, 9)(179, 6)(184, 5)(186, 5)(193, 1)(194, 4)
             (215,12)(227,10)(238, 6)(239, 3)(239, 9)(242, 5)(254, 1)(254, 8)(255, 9)(258, 1)
             (261, 4)(262, 6)(262,22)(263, 8)(264, 9)(268, 6)(271, 7)(275, 6)(280,10)(282,23)
             (286, 1)(287,23)(293, 8)(295, 6)(296, 3)(299, 5)(300, 9)(305,10)(307, 1)(311,23)
             (317, 5)(319,23)(322, 7)(323,18)(323,24)(324,10)(325, 4)(325,10)(328,10)(333, 1)
             (333, 6)(334, 8)(334,20)(339, 4)(339,10)(341, 4)(346,24)(348,22)(349, 5)(351,22)
             (352,18)(354,10)(354,19)(358, 9)(358,20)(360, 1)(361, 1)(363, 7)(365, 6)
  3     34    ( 12,21)( 17, 3)( 18,10)( 25,20)( 74, 8)( 88, 2)( 90, 4)( 91, 7)( 94, 7)( 95, 5)
             (134, 3)(137, 2)(169, 8)(222, 5)(228, 9)(251, 4)(258, 8)(270, 7)(278, 1)(279, 4)
             (288, 8)(311, 7)(313, 2)(315, 6)(319, 3)(323, 2)(323,10)(332,21)(337,24)(341, 8)
             (343, 5)(344,22)(350,24)(359, 2)
  4     12    ( 9, 7)( 39, 5)( 42, 4)( 49, 8)(131, 5)(141, 2)(152, 5)(201, 9)(278, 6)(292, 2)
             (313,24)(346, 4)
  5      3    ( 34, 3)(234, 8)(362, 6)
  6      2    (146, 7)(240, 8)
  8      2    (305, 6)(340, 6)
 13      1    ( 5,13)
```

Program terminated normally

CAL3QHCR (Dated: 04244)

DATE : 10/26/11
TIME : 17:56:53

PAGE: 1

JOB: 2030 NBCU Traffic Modeling, TOGDExh, scaled 1000x 000

RUN: CAL3QHCR RUN

===================
General Information
===================

Run start date: 1/ 1/81 Julian: 1
end date: 12/31/81 Julian: 365

A Tier 2 approach was used for input data preparation.

The MODE flag has been set to P for calculating PM averages.

Ambient background concentrations are excluded from the averages below.

Site & Meteorological Constants

VS = 0.0 CM/S VD = 0.0 CM/S Z0 = 44. CM ATIM = 60.

Met. Sfc. Sta. Id & Yr = 51100 81
Upper Air Sta. Id & Yr = 99999 81

Urban mixing heights were processed.

In 1981, Julian day 1 is a Thursday.

The patterns from the input file
have been assigned as follows:

Pattern # 1 is assigned to Monday.
Pattern # 1 is assigned to Tuesday.
Pattern # 1 is assigned to Wednesday.
Pattern # 1 is assigned to Thursday.
Pattern # 1 is assigned to Friday.
Pattern # 1 is assigned to Saturday.
Pattern # 1 is assigned to Sunday.

Link Data Constants - (Variable data in *.LNK file)

LINK DESCRIPTION	*	LINK COORDINATES (M)				*	LENGTH	BRG	TYPE	H	W	NLANES
	*	X1	Y1	X2	Y2	*	(M)	(DEG)		(M)	(M)	
1. N1	*	376047.00	3776911.00	375971.00	3777044.00	*	153.	330.	AG	8.0	24.0	
2. N2	*	375971.00	3777044.00	375801.00	3777259.00	*	274.	322.	AG	10.0	24.0	

3. N3	* 375801.00	3777259.00	375674.00	3777409.00 *	197.	320.	AG	4.0	24.0
4. N4	* 375674.00	3777409.00	375550.00	3777560.00 *	195.	321.	AG	2.0	24.0
5. N5	* 375550.00	3777560.00	375455.00	3777664.00 *	141.	318.	AG	1.0	24.0
6. N6	* 375455.00	3777664.00	375345.00	3777743.00 *	135.	306.	AG	-5.0	24.0
7. N7	* 375345.00	3777743.00	375233.00	3777792.00 *	122.	294.	AG	-7.0	24.0

JOB: 2030 NBCU Traffic Modeling, TOGDExh, scaled 1000x 000

RUN: CAL3QHCR RUN

Link Data Constants - (Variable data in *.LNK file)

LINK DESCRIPTION *	X1	Y1	X2	Y2 *	LENGTH (M)	BRG (DEG)	TYPE	H (M)	W (M) NLANES
8. N8 *	375233.00	3777792.00	374980.00	3777867.00 *	264.	287.	AG	-8.0	24.0
9. S9 *	374975.00	3777837.00	375287.00	3777738.00 *	327.	108.	AG	-10.0	24.0
10. S10 *	375287.00	3777738.00	375387.00	3777685.00 *	113.	118.	AG	-7.0	24.0
11. S11 *	375387.00	3777685.00	375483.00	3777603.00 *	126.	131.	AG	-3.0	24.0
12. S12 *	375483.00	3777603.00	375786.00	3777241.00 *	472.	140.	AG	2.0	24.0
13. S13 *	375786.00	3777241.00	375946.00	3777042.00 *	255.	141.	AG	9.0	24.0
14. S14 *	375946.00	3777042.00	376027.00	3776900.00 *	163.	150.	AG	8.0	24.0

Receptor Data

RECEPTOR *	X (M)	Y (M)	Z (M)
1. R1_G *	375432.56	3777792.75	8.8
2. R2_G *	375465.00	3777807.00	22.2
3. R3_G *	375473.06	3777763.50	19.3
4. R4_G *	375505.50	3777777.75	36.0
5. R5_G *	375506.47	3777814.50	43.5
6. R6_G *	375513.41	3777734.00	29.2
7. R7_G *	375544.47	3777746.50	44.8
8. R8_G *	375546.94	3777785.25	47.7
9. R9_G *	375547.78	3777697.75	29.9
10. R10_G *	375564.97	3777633.75	16.9
11. R11_G *	375578.22	3777709.50	39.2
12. R12_G *	375581.53	3777660.75	26.8
13. R13_G *	375582.44	3777750.25	41.8
14. R14_G *	375598.53	3777596.75	15.7
15. R15_G *	375611.97	3777672.75	34.1
16. R16_G *	375615.25	3777624.00	23.0
17. R17_G *	375616.19	3777713.25	35.0
18. R18_G *	375630.22	3777558.00	10.2

19. R19_G	*	375645.47	3777635.50	26.9
20. R20_G	*	375647.19	3777585.50	17.8
21. R21_G	*	375661.94	3777519.50	17.5
22. R22_G	*	375677.16	3777597.00	25.0
23. R23_G	*	375677.72	3777452.00	3.4
24. R24_G	*	375678.88	3777546.75	26.6
25. R25_G	*	375693.62	3777480.75	21.2
26. R26_G	*	375708.88	3777558.25	37.5
27. R27_G	*	375709.66	3777413.50	4.0

CAL3QHCR (Dated: 04244)

JOB: 2030 NBCU Traffic Modeling, TOGDExh, scaled 1000x 000

RUN: CAL3QHCR RUN

Receptor Data

RECEPTOR	*	COORDINATES (M) X	Y	Z
28. R28_G	*	375710.59	3777508.25	34.8
29. R29_G	*	375724.62	3777587.25	35.9
30. R30_G	*	375725.44	3777442.25	24.9
31. R31_G	*	375740.59	3777519.50	37.7
32. R32_G	*	375741.94	3777375.50	4.8
33. R33_G	*	375742.31	3777469.50	35.3
34. R34_G	*	375757.72	3777404.00	22.4
35. R35_G	*	375772.38	3777481.00	37.9
36. R36_G	*	375774.25	3777337.25	6.0
37. R37_G	*	375774.56	3777431.25	34.3
38. R38_G	*	375790.03	3777365.75	22.8
39. R39_G	*	375804.66	3777442.75	36.2
40. R40_G	*	375806.84	3777393.00	27.2
41. R41_G	*	375816.22	3777476.50	36.0
42. R42_G	*	375822.31	3777327.50	11.5
43. R43_G	*	375836.97	3777404.75	23.5
44. R44_G	*	375839.12	3777355.00	14.1
45. R45_G	*	375848.50	3777438.25	27.5
46. R46_G	*	375882.75	3777397.75	17.4

Model Results

Remarks : In search of the wind direction corresponding
to the maximum concentration, only the first
direction, of the directions with the same maximum
concentrations, is indicated as the maximum.

* MAXIMUM HOURLY CONCENTRATIONS WITH ANY AMBIENT BACKGROUND CONCENTRATIONS (BKG) ADDED
* (MICROGRAMS/M**3)
* REC1 REC2 REC3 REC4 REC5 REC6 REC7 REC8 REC9 REC10

```
--------*-----------------------------------------------------------------------------
MAX+BKG * 7414.2 5729.3 6686.1 4945.6 4232.8 5923.5 4508.2 4035.5 5988.5 9533.4
- BKG  *    0.0    0.0    0.0    0.0    0.0    0.0    0.0    0.0    0.0    0.0
--------*-----------------------------------------------------------------------------
 MAX   * 7414.2 5729.3 6686.1 4945.6 4232.8 5923.5 4508.2 4035.5 5988.5 9533.4
WIND DIR*   149    150    150    153    153    150    153    155    150    289
JULIAN *    248    211    211      8      8    211      8    365    211    346
HOUR   *      7      7      7      7      7      7      7      7      7      7
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CAL3QHCR (Dated: 04244)

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JOB: 2030 NBCU Traffic Modeling, TOGDExh, scaled 1000x 000       RUN: CAL3QHCR RUN
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* MAXIMUM HOURLY CONCENTRATIONS WITH ANY AMBIENT BACKGROUND CONCENTRATIONS (BKG) ADDED
* (MICROGRAMS/M**3)

```
       *  REC11  REC12  REC13  REC14  REC15  REC16  REC17  REC18  REC19  REC20
--------*-----------------------------------------------------------------------------
MAX+BKG * 5003.1 7767.7 4440.2 8689.0 5544.2 8051.0 4994.3 9717.4 6849.6 7946.2
- BKG  *    0.0    0.0    0.0    0.0    0.0    0.0    0.0    0.0    0.0    0.0
--------*-----------------------------------------------------------------------------
 MAX   * 5003.1 7767.7 4440.2 8689.0 5544.2 8051.0 4994.3 9717.4 6849.6 7946.2
WIND DIR*   153    284    155    150    155    287    157    153    286    155
JULIAN *      8    324    365    211    365    315    220      8    358    365
HOUR   *      7      7      7      7      7      7      7      7      7      7

       *  REC21  REC22  REC23  REC24  REC25  REC26  REC27  REC28  REC29  REC30
--------*-----------------------------------------------------------------------------
MAX+BKG * 9868.5 6813.7 15354.5 7736.8 10235.2 6089.1 16949.3 7206.0 5757.6 10455.1
- BKG  *    0.0    0.0    0.0    0.0    0.0    0.0    0.0    0.0    0.0    0.0
--------*-----------------------------------------------------------------------------
 MAX   * 9868.5 6813.7 15354.5 7736.8 10235.2 6089.1 16949.3 7206.0 5757.6 10455.1
WIND DIR*   153    157    150    155    153    158    150    157    161    155
JULIAN *      8    220    211    365      8    142    211    220    177    365
HOUR   *      7      7      7      7      7      7      7      7      7      7

       *  REC31  REC32  REC33  REC34  REC35  REC36  REC37  REC38  REC39  REC40
--------*-----------------------------------------------------------------------------
MAX+BKG * 6264.0 19222.6 7468.1 11719.7 6467.4 21216.2 7808.0 11872.5 6567.7 9106.6
- BKG  *    0.0    0.0    0.0    0.0    0.0    0.0    0.0    0.0    0.0    0.0
--------*-----------------------------------------------------------------------------
 MAX   * 6264.0 19222.6 7468.1 11719.7 6467.4 21216.2 7808.0 11872.5 6567.7 9106.6
WIND DIR*   161    153    158    157    163    157    161    161    163    163
JULIAN *    177      8    142    220    143    220    177    177    143    143
HOUR   *      7      7      7      7      7      7      7      7      7      7

       *  REC41  REC42  REC43  REC44  REC45  REC46
--------*-----------------------------------------------
MAX+BKG * 6067.2 14455.2 8359.8 11086.5 6930.9 7662.9
- BKG  *    0.0    0.0    0.0    0.0    0.0    0.0
--------*-----------------------------------------------
```

MAX * 6067.2 14455.2 8359.8 11086.5 6930.9 7662.9
WIND DIR* 168 163 168 168 171 176
JULIAN * 20 143 20 20 134 23
HOUR * 7 7 7 7 7 7

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THE HIGHEST CONCENTRATION OF21216.20 UG/M**3 OCCURRED AT RECEPTOR REC36.

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JOB: 2030 NBCU Traffic Modeling, TOGDExh, scaled 1000x 000 RUN: CAL3QHCR RUN

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Output Section
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NOTES PERTAINING TO THE REPORT

1. THE HIGHEST AVERAGE IN EACH OF THE FIRST TWO COLUMNS OF EACH TABLE BELOW ARE SUFFIXED BY AN ASTERISK (*).
FOR PM OUTPUT, THERE IS ONLY ONE COLUMN AND ASTERISK FOR THE ANNUAL AVERAGE/PERIOD OF CONCERN TABLE.

2. THE NUMBERS IN PARENTHESES ARE THE JULIAN DAY AND ENDING HOUR FOR THE PRECEDING AVERAGE.

3. THE NUMBER OF CALM HOURS USED IN PRODUCING EACH AVERAGE ARE PREFIXED BY A C.

PRIMARY AND SECONDARY AVERAGES.

FIVE HIGHEST 24-HOUR END-TO-END AVERAGE CONCENTRATIONS IN MICROGRAMS/M**3
EXCLUDING AMBIENT BACKGROUND CONCENTRATIONS.

Highest Second Highest Third Highest Fourth Highest Fifth Highest
Rcptr Ending Ending Ending Ending Ending
No. Conc Day Hr Calm Conc Day Hr Calm Conc Day Hr Calm Conc Day Hr Calm Conc Day Hr Calm

11092.04 (133,24) C 31034.96 (134,24) C 5 996.11 (145,24) C 2 932.61 (332,24) C 4 906.89 (88,24) C 4
2 740.37 (134,24) C 5 739.79 (133,24) C 3 681.87 (145,24) C 2 672.33 (332,24) C 4 631.22 (88,24) C 4
3 902.80 (133,24) C 3 874.12 (134,24) C 5 841.24 (332,24) C 4 811.56 (145,24) C 2 751.27 (88,24) C 4
4 546.81 (133,24) C 3 540.35 (332,24) C 4 472.38 (134,24) C 5 461.79 (8,24) C 2 455.02 (150,24) C 2
5 428.81 (133,24) C 3 419.46 (332,24) C 4 384.21 (134,24) C 5 378.95 (8,24) C 2 371.35 (150,24) C 2
6 761.01 (295,24) C 6 736.01 (332,24) C 4 725.84 (350,24) C 4 695.23 (133,24) C 3 636.59 (286,24) C 3

7 445.93 (332,24) C 4 434.49 (133,24) C 3 403.96 (295,24) C 6 393.12 (8,24) C 2 389.42 (350,24) C 4
8 382.01 (332,24) C 4 367.08 (133,24) C 3 356.48 (8,24) C 2 336.75 (150,24) C 2 327.28 (134,24) C 5
9 875.92 (295,24) C 6 834.68 (350,24) C 4 822.33 (312,24) C 6 733.28 (332,24) C 4 699.56 (324,24) C 5
101530.90 (312,24) C 61496.54 (350,24) C 41375.26 (295,24) C 61352.74 (36,24) C 31337.99 (358,24) C 6
11 620.53 (295,24) C 6 576.35 (350,24) C 4 536.97 (312,24) C 6 535.06 (332,24) C 4 493.56 (324,24) C 5
121193.35 (295,24) C 61173.07 (312,24) C 61105.62 (350,24) C 41079.61 (358,24) C 61025.84 (324,24) C 5
13 421.63 (332,24) C 4 397.41 (134,24) C 5 396.00 (8,24) C 2 393.59 (350,24) C 4 386.00 (133,24) C 3
141340.64 (350,24) C 41252.07 (312,24) C 61199.76 (8,24) C 21148.57 (318,24) C 21134.35 (346,24) C 7
15 776.55 (295,24) C 6 742.73 (312,24) C 6 734.95 (350,24) C 4 641.69 (358,24) C 6 637.58 (324,24) C 5
161215.74 (312,24) C 61157.20 (350,24) C 41113.29 (295,24) C 61092.41 (358,24) C 61054.18 (36,24) C 3
17 507.76 (134,24) C 5 504.15 (350,24) C 4 498.69 (295,24) C 6 477.46 (332,24) C 4 453.30 (286,24) C 3
181728.78 (350,24) C 41645.42 (8,24) C 21568.37 (312,24) C 61497.44 (318,24) C 21453.84 (314,24) C 5
191017.63 (295,24) C 61003.98 (312,24) C 6 969.37 (350,24) C 4 948.72 (358,24) C 6 890.42 (324,24) C 5
201087.13 (350,24) C 41032.84 (312,24) C 6 981.36 (8,24) C 2 956.66 (134,24) C 5 920.46 (295,24) C 6
211461.24 (8,24) C 21280.98 (350,24) C 41190.25 (318,24) C 21152.55 (335,24) C 21127.41 (312,24) C 6
22 998.43 (312,24) C 6 960.31 (350,24) C 4 886.55 (295,24) C 6 884.09 (358,24) C 6 856.80 (36,24) C 3
232867.04 (8,24) C 22820.38*(350,24) C 42461.18 (134,24) C 52425.62 (351,24) C 42406.62 (318,24) C 2
24 875.55 (8,24) C 2 819.85 (350,24) C 4 784.77 (312,24) C 6 719.08 (318,24) C 2 716.91 (314,24) C 5
251314.29 (8,24) C 21012.09 (350,24) C 4 984.20 (332,24) C 4 973.53 (318,24) C 2 971.69 (133,24) C 3
26 541.03 (8,24) C 2 521.81 (312,24) C 6 515.96 (350,24) C 4 499.62 (143,24) C 5 485.45 (134,24) C 5

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RUN: CAL3QHCR RUN

FIVE HIGHEST 24-HOUR END-TO-END AVERAGE CONCENTRATIONS IN MICROGRAMS/M**3
EXCLUDING AMBIENT BACKGROUND CONCENTRATIONS.

Highest Second Highest Third Highest Fourth Highest Fifth Highest
Rcptr Ending Ending Ending Ending Ending
No. Conc Day Hr Calm Conc Day Hr Calm Conc Day Hr Calm Conc Day Hr Calm Conc Day Hr
Calm

272898.89 (8,24) C 22707.12 (350,24) C 42420.13 (332,24) C 42399.47 (134,24) C 52337.55 (351,24) C 4
28 782.21 (8,24) C 2 612.32 (335,24) C 2 598.83 (350,24) C 4 584.80 (359,24) C 6 584.54 (318,24) C 2
29 791.07 (312,24) C 6 732.32 (350,24) C 4 718.12 (358,24) C 6 712.07 (295,24) C 6 677.53 (296,24) C 2
301183.73 (8,24) C 2 875.42 (133,24) C 3 858.96 (332,24) C 4 852.73 (359,24) C 6 815.34 (350,24) C 4
31 566.91 (8,24) C 2 532.86 (350,24) C 4 530.02 (143,24) C 5 526.63 (134,24) C 5 523.54 (312,24) C 6
322939.29*(8,24) C 22615.98 (350,24) C 42433.97 (332,24) C 42426.96 (134,24) C 52264.77 (351,24) C 4
33 800.68 (8,24) C 2 604.10 (335,24) C 2 594.98 (359,24) C 6 572.81 (143,24) C 5 569.37 (350,24) C 4
341296.67 (8,24) C 2 947.08 (134,24) C 5 936.22 (350,24) C 4 934.71 (143,24) C 5 931.13 (359,24) C 6
35 588.54 (8,24) C 2 572.53 (134,24) C 5 552.38 (143,24) C 5 542.93 (350,24) C 4 512.96 (312,24) C 6
362926.05 (8,24) C 22575.72 (134,24) C 52490.23 (350,24) C 42373.11 (332,24) C 42245.66 (23,24) C 2
37 790.02 (8,24) C 2 632.96 (143,24) C 5 617.80 (134,24) C 5 590.98 (359,24) C 6 587.20 (335,24) C 2
381274.93 (8,24) C 21062.90 (134,24) C 51000.76 (143,24) C 5 961.24 (359,24) C 6 944.65 (23,24) C 2
39 654.08 (134,24) C 5 600.81 (8,24) C 2 576.78 (143,24) C 5 567.41 (350,24) C 4 563.27 (23,24) C 2
40 925.73 (134,24) C 5 924.19 (8,24) C 2 815.61 (23,24) C 2 805.27 (143,24) C 5 775.89 (350,24) C 4
41 674.23 (134,24) C 5 566.99 (350,24) C 4 541.14 (312,24) C 6 531.66 (23,24) C 2 526.71 (143,24) C 5
421849.92 (134,24) C 51718.61 (8,24) C 21612.05 (23,24) C 21547.86 (350,24) C 41412.02 (143,24) C 5
431028.87 (134,24) C 5 871.30 (23,24) C 2 842.66 (350,24) C 4 782.70 (8,24) C 2 755.78 (143,24) C 5
441468.96 (134,24) C 51245.66 (23,24) C 21196.78 (350,24) C 41163.44 (8,24) C 21071.66 (143,24) C 5
45 864.65 (134,24) C 5 721.87 (350,24) C 4 712.30 (23,24) C 2 656.22 (312,24) C 6 616.52 (346,24) C 7

461050.82 (134,24) C 5 869.76 (23,24) C 2 867.49 (350,24) C 4 765.22 (312,24) C 6 737.35 (346,24) C 7

THE HIGHEST ANNUAL AVERAGE CONCENTRATIONS
IN MICROGRAMS/M**3
EXCLUDING AMBIENT BACKGROUND CONCENTRATIONS.

Receptor Number	Maximum Conc	Ending Day Hr	Calm
1	472.74	(365,24)	C 887
2	323.92	(365,24)	C 887
3	414.44	(365,24)	C 887
4	240.96	(365,24)	C 887
5	185.60	(365,24)	C 887
6	337.54	(365,24)	C 887
7	187.70	(365,24)	C 887
8	167.02	(365,24)	C 887
9	344.89	(365,24)	C 887
10	627.15	(365,24)	C 887
11	239.18	(365,24)	C 887
12	422.49	(365,24)	C 887
13	193.08	(365,24)	C 887
14	600.55	(365,24)	C 887

THE HIGHEST ANNUAL AVERAGE CONCENTRATIONS
IN MICROGRAMS/M**3
EXCLUDING AMBIENT BACKGROUND CONCENTRATIONS.

Receptor Number	Maximum Conc	Ending Day Hr	Calm
15	289.07	(365,24)	C 887
16	459.82	(365,24)	C 887
17	234.06	(365,24)	C 887
18	766.72	(365,24)	C 887
19	376.56	(365,24)	C 887
20	483.09	(365,24)	C 887
21	572.04	(365,24)	C 887
22	384.19	(365,24)	C 887
23	1365.73*	(365,24)	C 887
24	356.73	(365,24)	C 887
25	468.85	(365,24)	C 887
26	224.29	(365,24)	C 887
27	1325.60	(365,24)	C 887
28	258.79	(365,24)	C 887
29	274.55	(365,24)	C 887
30	387.45	(365,24)	C 887
31	227.14	(365,24)	C 887
32	1292.34	(365,24)	C 887
33	251.22	(365,24)	C 887

34	443.64	(365,24)	C	887
35	227.74	(365,24)	C	887
36	1244.27	(365,24)	C	887
37	257.57	(365,24)	C	887
38	441.27	(365,24)	C	887
39	239.98	(365,24)	C	887
40	348.89	(365,24)	C	887
41	235.51	(365,24)	C	887
42	736.04	(365,24)	C	887
43	366.89	(365,24)	C	887
44	545.96	(365,24)	C	887
45	301.98	(365,24)	C	887
46	372.29	(365,24)	C	887

CAL3QHCR (Dated: 04244)

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JOB: 2030 NBCU Traffic Modeling, TOGDExh, scaled 1000x 000 RUN: CAL3QHCR RUN

CALM DURATION FREQUENCY

Hours of Consecutive Calm Winds	Frequency of Occurrence	(Julian day/hour ending) of Significant Occurrences
1	483	(2, 2)(2,14)(5,20)(7, 8)(8, 2)(8,22)(9, 1)(9,11)(9,20)(9,23) (10, 2)(10, 6)(10,17)(10,22)(11, 8)(13, 2)(13, 4)(13,18)(13,23)(14, 6) (14,24)(15,10)(16, 6)(16,13)(16,20)(17, 5)(17,10)(17,13)(17,17)(18,18) (18,24)(19, 2)(19,10)(19,12)(20,18)(21, 4)(21,17)(21,23)(22, 3)(22, 6) (22,10)(24, 6)(24, 9)(25,22)(26,10)(26,23)(30, 8)(31,22)(32, 3)(32, 7) (32,20)(33, 4)(34, 6)(34,22)(34,24)(35, 4)(35, 6)(35, 8)(35,21)(36, 6) (36,18)(36,22)(37, 9)(37,23)(38, 2)(38, 6)(39, 7)(40,20)(41, 2)(41, 7) (44, 1)(45, 3)(45, 8)(45,11)(46, 3)(47, 8)(47,11)(48,21)(50, 3)(50, 7) (53, 7)(53,21)(53,24)(54, 9)(57,19)(59, 3)(59, 6)(65, 6)(65,21)(65,23) (67, 2)(67, 5)(67, 7)(70,22)(72, 2)(72, 8)(73, 4)(73, 7)(74, 2)(74, 4) (76, 2)(80, 7)(80,22)(81, 4)(81,24)(83, 4)(86, 3)(86, 5)(88, 7)(88,22) (89, 2)(89, 5)(89,19)(89,24)(90, 8)(93, 1)(94, 9)(94,22)(95, 9)(95,23) (99, 2)(101, 6)(105, 2)(106, 3)(106, 5)(106, 7)(108,21)(110, 2)(121, 1)(124, 3) (125, 7)(128, 5)(129, 4)(129,22)(132,21)(132,24)(133,10)(133,20)(133,23)(134, 6) (134,20)(135, 2)(135, 4)(135, 7)(136, 2)(137, 6)(137, 9)(137,18)(138,21)(141, 4) (141, 9)(141,24)(142, 5)(143, 2)(144, 4)(145, 4)(145, 7)(146,16)(148, 1)(148,24) (149, 4)(149,22)(151, 5)(152, 8)(153, 5)(154, 5)(154, 7)(154,10)(155, 5)(157, 6) (158, 3)(166,19)(167, 9)(170, 8)(172, 4)(173, 1)(173, 3)(173, 6)(173, 8)(174,24) (175, 5)(176, 5)(177, 4)(177,10)(178, 5)(179, 3)(179, 8)(180, 5)(180, 8)(181, 1) (181, 5)(182, 8)(184, 7)(188, 2)(189, 5)(189, 7)(190, 1)(191, 7)(192, 7)(193, 7) (195, 3)(195, 5)(196, 3)(196, 5)(196, 8)(199, 2)(199, 5)(200, 8)(202, 7)(205, 5) (206, 6)(207, 8)(208, 3)(209, 1)(209,24)(212, 5)(213, 3)(213, 6)(214, 4)(214, 8) (215, 6)(217, 8)(217,24)(218, 8)(222, 8)(222,24)(223, 4)(223, 7)(224, 2)(225, 7) (225,21)(226,23)(227, 1)(229, 5)(230, 7)(231, 2)(232,21)(232,23)(233, 2)(233, 5) (235, 8)(236, 1)(236, 4)(236, 8)(236,23)(237, 6)(238, 8)(239,22)(240,21)(241, 5) (242, 8)(243, 5)(244, 4)(245, 7)(247, 3)(247, 5)(247,22)(248, 2)(249, 9)(249,11) (250, 4)(250, 9)(250,24)(251, 6)(251, 9)(252, 2)(252, 6)(252, 9)(253, 4)(254, 5)

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            (254,22)(254,24)(255, 4)(256, 2)(256, 4)(256, 7)(257, 1)(257, 5)(257, 7)(259,19)
            (260, 4)(260,23)(261,21)(261,24)(262, 2)(262,18)(264,22)(266, 9)(267, 5)(268, 1)
            (268, 9)(269, 3)(273, 1)(273, 7)(274, 1)(274,22)(275, 2)(275,10)(276,10)(276,12)
            (277, 1)(277, 5)(277, 8)(277,18)(278, 8)(278,23)(279, 6)(279, 8)(279,24)(280, 4)
            (281, 2)(281, 5)(282, 4)(282, 7)(283, 8)(284, 1)(284, 3)(284, 5)(285,20)(286, 5)
            (286,18)(287, 2)(287, 6)(287, 8)(287,10)(287,18)(288, 2)(288, 4)(288,21)(288,23)
            (289, 9)(289,23)(290, 7)(290,23)(291, 2)(292, 4)(292,11)(294, 8)(295, 2)(295, 8)
            (295,20)(295,24)(297, 5)(298, 7)(298, 9)(299,20)(299,23)(300, 4)(300, 6)(300,22)
            (301, 7)(301,22)(302, 4)(303,19)(304, 9)(304,17)(305,22)(306, 2)(306, 4)(306, 6)
            (306,10)(306,12)(307, 9)(307,18)(307,20)(308, 7)(308,10)(308,21)(308,23)(310,20)
            (310,23)(311,11)(312, 1)(312, 5)(312, 7)(312, 9)(312,22)(313, 7)(314, 2)(314, 9)
            (314,12)(314,19)(314,24)(315,22)(317,19)(318, 8)(318,18)(319, 7)(319,19)(320, 6)
            (321, 7)(321,21)(322, 1)(322,20)(323, 4)(324, 2)(324,19)(324,24)(326, 4)(326, 9)
            (326,20)(326,23)(327,10)(328, 7)(329, 1)(330, 4)(331, 1)(331,13)(333,19)(334,22)
            (335, 3)(335,22)(336, 1)(336, 3)(336,22)(337, 1)(337, 5)(337, 7)(337,17)(338, 4)
            (338, 8)(338,21)(338,24)(339,19)(339,21)(341,10)(341,20)(341,23)(342, 3)(342,12)
            (342,17)(342,23)(343, 1)(343, 7)(343,10)(343,19)(344, 3)(344, 6)(344,10)(344,12)
            (344,24)(345, 7)(345, 9)(345,11)(345,15)(345,21)(346,12)(347,23)(348, 5)(348,10)
            (348,17)(349, 2)(349, 7)(349,10)(349,19)(349,21)(349,24)(350, 3)(351, 5)(351,10)
            (352, 3)(352, 6)(352, 8)(353, 5)(353, 8)(353,19)(353,21)(353,23)(354, 6)(354,15)
            (355, 8)(357,20)(358,16)(359, 5)(359, 8)(359,22)(360,10)(360,17)(361,19)(362,24)
            (363, 2)(363, 4)(363,18)
  2     99   ( 7, 3)( 14,20)( 15, 5)( 16, 9)( 17,23)( 18, 2)( 19,22)( 23,23)( 25, 8)( 30, 5)
            ( 34, 9)( 37, 7)( 49,23)( 54, 4)( 58, 9)( 66,24)( 67,23)( 68, 2)( 68, 5)( 74,23)
            ( 76, 7)( 82, 6)( 84, 6)( 91, 1)( 93, 6)(127, 7)(129, 1)(143, 9)(143,24)(144, 8)
            (150, 5)(168, 3)(170, 6)(171, 6)(171, 9)(179, 6)(184, 5)(186, 5)(193, 1)(194, 4)
            (215,12)(227,10)(238, 6)(239, 3)(239, 9)(242, 5)(254, 1)(254, 8)(255, 9)(258, 1)
            (261, 4)(262, 6)(262,22)(263, 8)(264, 9)(268, 6)(271, 7)(275, 6)(280,10)(282,23)
            (286, 1)(287,23)(293, 8)(295, 6)(296, 3)(299, 5)(300, 9)(305,10)(307, 1)(311,23)
            (317, 5)(319,23)(322, 7)(323,18)(323,24)(324,10)(325, 4)(325,10)(328,10)(333, 1)
            (333, 6)(334, 8)(334,20)(339, 4)(339,10)(341, 4)(346,24)(348,22)(349, 5)(351,22)
            (352,18)(354,10)(354,19)(358, 9)(358,20)(360, 1)(361, 1)(363, 7)(365, 6)
  3     34   ( 12,21)( 17, 3)( 18,10)( 25,20)( 74, 8)( 88, 2)( 90, 4)( 91, 7)( 94, 7)( 95, 5)
            (134, 3)(137, 2)(169, 8)(222, 5)(228, 9)(251, 4)(258, 8)(270, 7)(278, 1)(279, 4)
            (288, 8)(311, 7)(313, 2)(315, 6)(319, 3)(323, 2)(323,10)(332,21)(337,24)(341, 8)
            (343, 5)(344,22)(350,24)(359, 2)
  4     12   ( 9, 7)( 39, 5)( 42, 4)( 49, 8)(131, 5)(141, 2)(152, 5)(201, 9)(278, 6)(292, 2)
            (313,24)(346, 4)
  5      3   ( 34, 3)(234, 8)(362, 6)
  6      2   (146, 7)(240, 8)
  8      2   (305, 6)(340, 6)
 13      1   ( 5,13)
```

Program terminated normally

CAL3QHCR (Dated: 04244)

DATE : 10/26/11
TIME : 17:57:33

JOB: NBCU 2030 Traffic Modeling, TOGGExh, scaled 1000x 000   RUN: CAL3QHCR RUN

===================
General Information
===================

Run start date: 1/ 1/81 Julian: 1
end date: 12/31/81 Julian: 365

A Tier 2 approach was used for input data preparation.

The MODE flag has been set to C for calculating CO averages.

Ambient background concentrations are excluded from the averages below.

Site & Meteorological Constants

VS = 0.0 CM/S VD = 0.0 CM/S Z0 = 44. CM ATIM = 60.

Met. Sfc. Sta. Id & Yr = 51100 81
Upper Air Sta. Id & Yr = 99999 81

Urban mixing heights were processed.

In 1981, Julian day 1 is a Thursday.

The patterns from the input file
have been assigned as follows:

Pattern # 1 is assigned to Monday.
Pattern # 1 is assigned to Tuesday.
Pattern # 1 is assigned to Wednesday.
Pattern # 1 is assigned to Thursday.
Pattern # 1 is assigned to Friday.
Pattern # 1 is assigned to Saturday.
Pattern # 1 is assigned to Sunday.

Link Data Constants - (Variable data in *.LNK file)

LINK DESCRIPTION	*	LINK COORDINATES (M)				*	LENGTH	BRG	TYPE	H	W	NLANES
	*	X1	Y1	X2	Y2	*	(M)	(DEG)		(M)	(M)	
1. N1	*	376047.00	3776911.00	375971.00	3777044.00	*	153.	330.	AG	8.0	24.0	
2. N2	*	375971.00	3777044.00	375801.00	3777259.00	*	274.	322.	AG	10.0	24.0	

3. N3	* 375801.00	3777259.00	375674.00	3777409.00 *	197.	320.	AG	4.0	24.0
4. N4	* 375674.00	3777409.00	375550.00	3777560.00 *	195.	321.	AG	2.0	24.0
5. N5	* 375550.00	3777560.00	375455.00	3777664.00 *	141.	318.	AG	1.0	24.0
6. N6	* 375455.00	3777664.00	375345.00	3777743.00 *	135.	306.	AG	-5.0	24.0
7. N7	* 375345.00	3777743.00	375233.00	3777792.00 *	122.	294.	AG	-7.0	24.0

CAL3QHCR (Dated: 04244)

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JOB: NBCU 2030 Traffic Modeling, TOGGExh, scaled 1000x 000

RUN: CAL3QHCR RUN

Link Data Constants - (Variable data in *.LNK file)

LINK DESCRIPTION	* X1	Y1	X2	Y2 *	LENGTH (M)	BRG (DEG)	TYPE	H (M)	W (M)
8. N8	* 375233.00	3777792.00	374980.00	3777867.00 *	264.	287.	AG	-8.0	24.0
9. S9	* 374975.00	3777837.00	375287.00	3777738.00 *	327.	108.	AG	-10.0	24.0
10. S10	* 375287.00	3777738.00	375387.00	3777685.00 *	113.	118.	AG	-7.0	24.0
11. S11	* 375387.00	3777685.00	375483.00	3777603.00 *	126.	131.	AG	-3.0	24.0
12. S12	* 375483.00	3777603.00	375786.00	3777241.00 *	472.	140.	AG	2.0	24.0
13. S13	* 375786.00	3777241.00	375946.00	3777042.00 *	255.	141.	AG	9.0	24.0
14. S14	* 375946.00	3777042.00	376027.00	3776900.00 *	163.	150.	AG	8.0	24.0

Receptor Data

RECEPTOR	* X (M)	Y (M)	Z (M)
1. R1_G	* 375432.56	3777792.75	8.8
2. R2_G	* 375465.00	3777807.00	22.2
3. R3_G	* 375473.06	3777763.50	19.3
4. R4_G	* 375505.50	3777777.75	36.0
5. R5_G	* 375506.47	3777814.50	43.5
6. R6_G	* 375513.41	3777734.00	29.2
7. R7_G	* 375544.47	3777746.50	44.8
8. R8_G	* 375546.94	3777785.25	47.7
9. R9_G	* 375547.78	3777697.75	29.9
10. R10_G	* 375564.97	3777633.75	16.9
11. R11_G	* 375578.22	3777709.50	39.2
12. R12_G	* 375581.53	3777660.75	26.8
13. R13_G	* 375582.44	3777750.25	41.8
14. R14_G	* 375598.53	3777596.75	15.7
15. R15_G	* 375611.97	3777672.75	34.1
16. R16_G	* 375615.25	3777624.00	23.0
17. R17_G	* 375616.19	3777713.25	35.0
18. R18_G	* 375630.22	3777558.00	10.2

19. R19_G	*	375645.47	3777635.50	26.9
20. R20_G	*	375647.19	3777585.50	17.8
21. R21_G	*	375661.94	3777519.50	17.5
22. R22_G	*	375677.16	3777597.00	25.0
23. R23_G	*	375677.72	3777452.00	3.4
24. R24_G	*	375678.88	3777546.75	26.6
25. R25_G	*	375693.62	3777480.75	21.2
26. R26_G	*	375708.88	3777558.25	37.5
27. R27_G	*	375709.66	3777413.50	4.0

Receptor Data

RECEPTOR	*	COORDINATES (M) X	Y	Z
28. R28_G	*	375710.59	3777508.25	34.8
29. R29_G	*	375724.62	3777587.25	35.9
30. R30_G	*	375725.44	3777442.25	24.9
31. R31_G	*	375740.59	3777519.50	37.7
32. R32_G	*	375741.94	3777375.50	4.8
33. R33_G	*	375742.31	3777469.50	35.3
34. R34_G	*	375757.72	3777404.00	22.4
35. R35_G	*	375772.38	3777481.00	37.9
36. R36_G	*	375774.25	3777337.25	6.0
37. R37_G	*	375774.56	3777431.25	34.3
38. R38_G	*	375790.03	3777365.75	22.8
39. R39_G	*	375804.66	3777442.75	36.2
40. R40_G	*	375806.84	3777393.00	27.2
41. R41_G	*	375816.22	3777476.50	36.0
42. R42_G	*	375822.31	3777327.50	11.5
43. R43_G	*	375836.97	3777404.75	23.5
44. R44_G	*	375839.12	3777355.00	14.1
45. R45_G	*	375848.50	3777438.25	27.5
46. R46_G	*	375882.75	3777397.75	17.4

Model Results

Remarks : In search of the wind direction corresponding
to the maximum concentration, only the first
direction, of the directions with the same maximum
concentrations, is indicated as the maximum.

* MAXIMUM HOURLY CONCENTRATIONS WITH ANY AMBIENT BACKGROUND CONCENTRATIONS (BKG) ADDED

* (PPM)

* REC1 REC2 REC3 REC4 REC5 REC6 REC7 REC8 REC9 REC10

MAX+BKG *	8.7	6.5	7.5	5.1	4.3	7.0	4.5	4.0	9.3	14.0
- BKG *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MAX *	8.7	6.5	7.5	5.1	4.3	7.0	4.5	4.0	9.3	14.0
WIND DIR*	153	160	153	155	155	278	153	157	284	289
JULIAN *	8	21	8	365	365	334	8	220	9	347
HOUR *	7	18	7	7	7	18	7	7	18	18

CAL3QHCR (Dated: 04244)

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JOB: NBCU 2030 Traffic Modeling, TOGGExh, scaled 1000x 000

RUN: CAL3QHCR RUN

* MAXIMUM HOURLY CONCENTRATIONS WITH ANY AMBIENT BACKGROUND CONCENTRATIONS (BKG) ADDED

* (PPM)

*	REC11	REC12	REC13	REC14	REC15	REC16	REC17	REC18	REC19	REC20
MAX+BKG *	6.1	11.1	4.3	10.0	8.0	11.1	4.7	13.7	9.3	8.4
- BKG *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MAX *	6.1	11.1	4.3	10.0	8.0	11.1	4.7	13.7	9.3	8.4
WIND DIR*	284	284	158	289	284	289	157	298	286	289
JULIAN *	9	9	142	347	9	347	220	304	348	347
HOUR *	18	18	7	18	18	18	7	18	7	18

*	REC21	REC22	REC23	REC24	REC25	REC26	REC27	REC28	REC29	REC30
MAX+BKG *	12.1	9.0	17.9	7.1	9.9	5.3	17.0	6.6	7.5	9.3
- BKG *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MAX *	12.1	9.0	17.9	7.1	9.9	5.3	17.0	6.6	7.5	9.3
WIND DIR*	298	289	298	157	298	158	153	298	289	155
JULIAN *	304	347	304	220	304	142	8	304	347	365
HOUR *	18	18	18	7	18	7	7	18	18	7

*	REC31	REC32	REC33	REC34	REC35	REC36	REC37	REC38	REC39	REC40
MAX+BKG *	5.4	17.9	6.8	10.0	5.5	18.7	6.6	9.9	5.5	7.6
- BKG *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MAX *	5.4	17.9	6.8	10.0	5.5	18.7	6.6	9.9	5.5	7.6
WIND DIR*	161	155	298	158	161	155	161	161	163	163
JULIAN *	177	365	304	142	177	365	177	177	143	143
HOUR *	7	7	18	7	7	7	7	7	7	7

*	REC41	REC42	REC43	REC44	REC45	REC46
MAX+BKG *	5.1	12.2	7.0	9.3	5.8	6.4
- BKG *	0.0	0.0	0.0	0.0	0.0	0.0

MAX *	5.1	12.2	7.0	9.3	5.8	6.4
WIND DIR*	168	163	168	168	171	176
JULIAN *	20	143	20	20	134	23
HOUR *	7	7	7	7	7	7

THE HIGHEST CONCENTRATION OF 18.70 PPM OCCURRED AT RECEPTOR REC36.

==============
Output Section
==============

NOTES PERTAINING TO THE REPORT

1. THE HIGHEST AVERAGE IN EACH OF THE FIRST TWO COLUMNS OF EACH TABLE BELOW ARE SUFFIXED BY AN ASTERISK (*).
FOR PM OUTPUT, THERE IS ONLY ONE COLUMN AND ASTERISK FOR THE ANNUAL AVERAGE/PERIOD OF CONCERN TABLE.

2. THE NUMBERS IN PARENTHESES ARE THE JULIAN DAY AND ENDING HOUR FOR THE PRECEDING AVERAGE.

3. THE NUMBER OF CALM HOURS USED IN PRODUCING EACH AVERAGE ARE PREFIXED BY A C.

PRIMARY AVERAGES.

MAXIMUM 8-HOUR RUNNING NONOVERLAPPING AVERAGE CONCENTRATIONS
IN PARTS PER MILLION (PPM),
EXCLUDING AMBIENT BACKGROUND CONCENTRATIONS.

Receptor Number	Highest Conc	Ending Day Hr	Calm	Second highest Conc	Ending Day Hr	Calm
1	3.74	(109,23)	C 0	3.70	(276,15)	C 2
2	2.51	(109,23)	C 0	2.43	(134,13)	C 1
3	3.18	(109,23)	C 0	3.07	(276,15)	C 2
4	1.94	(109,23)	C 0	1.72	(276,15)	C 2
5	1.44	(109,23)	C 0	1.37	(276,15)	C 2
6	2.68	(109,24)	C 0	2.45	(9,23)	C 2

7	1.52	(109,24) C 0	1.32	(276,15) C 2
8	1.35	(109,23) C 0	1.19	(230,13) C 1
9	2.85	(9,23) C 2	2.73	(312,24) C 2
10	4.68	(9,23) C 2	4.58	(18,24) C 2
11	1.95	(29,22) C 0	1.92	(9,24) C 2
12	3.68	(295,13) C 2	3.48	(9,23) C 2
13	1.54	(109,23) C 0	1.34	(134,13) C 1
14	4.27	(350,23) C 2	4.15	(18,24) C 2
15	2.40	(9,23) C 2	2.38	(312,24) C 2
16	3.63	(9,23) C 2	3.53	(18,24) C 2
17	1.80	(350,23) C 2	1.77	(109,23) C 0
18	5.57	(9,23) C 2	5.48	(350,23) C 2
19	3.17	(295,13) C 2	2.97	(9,23) C 2
20	3.60	(350,23) C 2	3.53	(9,23) C 2
21	4.77	(342, 2) C 2	3.87	(351,12) C 2
22	3.10	(9,23) C 2	3.02	(18,24) C 2
23	9.22*	(350,23) C 2	8.97*	(9,23) C 2
24	2.62	(18,24) C 2	2.47	(350,23) C 2

CAL3QHCR (Dated: 04244)

JOB: NBCU 2030 Traffic Modeling, TOGGExh, sca RUN: CAL3QHCR RUN

MAXIMUM 8-HOUR RUNNING NONOVERLAPPING AVERAGE CONCENTRATIONS
IN PARTS PER MILLION (PPM),
EXCLUDING AMBIENT BACKGROUND CONCENTRATIONS.

Receptor Number	Highest Conc	Ending Day Hr Calm	Second highest Conc	Ending Day Hr Calm
25	4.00	(342, 2) C 2	3.44	(8,14) C 0
26	1.77	(18,24) C 2	1.70	(350,23) C 2
27	8.70	(350,23) C 2	8.48	(9,23) C 2
28	2.48	(342, 2) C 2	2.04	(8,14) C 0
29	2.30	(18,24) C 2	2.28	(9,23) C 2
30	3.37	(342, 2) C 2	3.09	(8,14) C 0
31	1.82	(18,24) C 2	1.71	(134,13) C 1
32	8.43	(350,23) C 2	8.15	(312,24) C 2
33	2.68	(342, 2) C 2	2.12	(8,14) C 0
34	3.42	(342, 2) C 2	3.34	(8,14) C 0
35	1.88	(342, 2) C 2	1.80	(134,13) C 1
36	8.10	(350,23) C 2	7.83	(312,24) C 2
37	2.58	(342, 2) C 2	2.04	(8,14) C 0
38	3.40	(342, 2) C 2	3.37	(134,13) C 1
39	2.04	(134,13) C 1	1.97	(342, 2) C 2
40	2.90	(342, 2) C 2	2.84	(134,13) C 1
41	1.93	(134,13) C 1	1.90	(350,23) C 2
42	5.41	(134,13) C 1	4.78	(350,23) C 2
43	2.94	(134,13) C 1	2.75	(350,23) C 2
44	4.20	(134,13) C 1	3.88	(350,23) C 2
45	2.46	(134,13) C 1	2.37	(350,23) C 2

46 2.95 (350,23) C 2 2.91 (134,13) C 1

FIVE HIGHEST 1-HOUR END-TO-END AVERAGE CONCENTRATIONS IN PARTS PER MILLION
EXCLUDING AMBIENT BACKGROUND CONCENTRATIONS.

Rcptr No.	Highest Ending Conc	Day Hr	Calm	Second Highest Ending Conc	Day Hr	Calm	Third Highest Ending Conc	Day Hr	Calm	Fourth Highest Ending Conc	Day Hr	Calm	Fifth Highest Ending Conc	Day Hr	Calm
1	8.70	(8, 7)	C 0	8.70	(211, 7)	C 0	8.60	(248, 7)	C 0	8.60	(332, 7)	C 0	8.50	(21,18)	C 0
2	6.50	(21,18)	C 0	6.20	(365, 7)	C 0	6.20	(8, 7)	C 0	6.20	(211, 7)	C 0	6.10	(220, 7)	C 0
3	7.50	(8, 7)	C 0	7.50	(211, 7)	C 0	7.40	(21,18)	C 0	7.30	(365, 7)	C 0	7.20	(248, 7)	C 0
4	5.10	(365, 7)	C 0	5.00	(8, 7)	C 0	5.00	(220, 7)	C 0	4.90	(211, 7)	C 0	4.80	(142, 7)	C 0
5	4.30	(365, 7)	C 0	4.20	(8, 7)	C 0	4.10	(142, 7)	C 0	4.10	(220, 7)	C 0	3.80	(21,18)	C 0
6	7.00	(334,18)	C 0	6.80	(358,18)	C 0	6.60	(14,18)	C 0	6.40	(9,18)	C 0	6.20	(365, 7)	C 0
7	4.50	(8, 7)	C 0	4.40	(365, 7)	C 0	4.30	(220, 7)	C 0	4.20	(211, 7)	C 0	4.10	(142, 7)	C 0
8	4.00	(220, 7)	C 0	3.90	(8, 7)	C 0	3.90	(365, 7)	C 0	3.70	(142, 7)	C 0	3.40	(21,18)	C 0
9	9.30	(9,18)	C 0	8.30	(347,18)	C 0	8.00	(334,18)	C 0	7.40	(295,19)	C 0	7.30	(358,18)	C 0
10	14.00	(347,18)	C 0	13.00	(346, 7)	C 0	12.90	(296, 7)	C 0	12.80	(315, 7)	C 0	12.60	(36, 7)	C 0
11	6.10	(9,18)	C 0	6.10	(334,18)	C 0	5.80	(358,18)	C 0	5.60	(14,18)	C 0	5.00	(29,19)	C 0
12	11.10	(9,18)	C 0	11.10	(347,18)	C 0	10.60	(62, 7)	C 0	10.60	(324, 7)	C 0	10.50	(307, 7)	C 0
13	4.30	(142, 7)	C 0	4.30	(220, 7)	C 0	4.20	(365, 7)	C 0	4.00	(8, 7)	C 0	4.00	(177, 7)	C 0

CAL3QHCR (Dated: 04244)

DATE : 10/26/11
TIME : 17:57:51

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JOB: NBCU 2030 Traffic Modeling, TOGGExh, scaled 1000x 000

RUN: CAL3QHCR RUN

FIVE HIGHEST 1-HOUR END-TO-END AVERAGE CONCENTRATIONS IN PARTS PER MILLION
EXCLUDING AMBIENT BACKGROUND CONCENTRATIONS.

Rcptr No.	Highest Ending Conc	Day Hr	Calm	Second Highest Ending Conc	Day Hr	Calm	Third Highest Ending Conc	Day Hr	Calm	Fourth Highest Ending Conc	Day Hr	Calm	Fifth Highest Ending Conc	Day Hr	Calm
14	10.00	(347,18)	C 0	9.40	(296, 7)	C 0	9.30	(346, 7)	C 0	9.20	(8, 7)	C 0	9.10	(34, 7)	C 0
15	8.00	(9,18)	C 0	7.30	(347,18)	C 0	6.70	(334,18)	C 0	6.50	(295,19)	C 0	6.40	(312,19)	C 0
16	11.10	(347,18)	C 0	10.80	(315, 7)	C 0	10.80	(307, 7)	C 0	10.80	(348, 7)	C 0	10.70	(358, 7)	C 0
17	4.70	(220, 7)	C 0	4.70	(142, 7)	C 0	4.50	(177, 7)	C 0	4.50	(365, 7)	C 0	4.30	(143, 7)	C 0
18	13.70	(304,18)	C 0	11.70	(347,18)	C 0	11.30	(54, 7)	C 0	11.30	(314, 7)	C 0	11.20	(34, 7)	C 0
19	9.30	(348, 7)	C 0	9.30	(358, 7)	C 0	9.10	(62, 7)	C 0	9.10	(307, 7)	C 0	9.10	(324, 7)	C 0
20	8.40	(347,18)	C 0	7.60	(142, 7)	C 0	7.50	(220, 7)	C 0	7.50	(365, 7)	C 0	7.40	(8, 7)	C 0
21	12.10	(304,18)	C 0	10.00	(318,19)	C 0	9.90	(341,19)	C 0	9.70	(316, 7)	C 0	9.70	(336, 7)	C 0
22	9.00	(347,18)	C 0	8.70	(346, 7)	C 0	8.60	(315, 7)	C 0	8.50	(296, 7)	C 0	8.40	(348, 7)	C 0
23	17.90	(304,18)	C 0	16.00	(21,18)	C 0	16.00	(8, 7)	C 0	15.80	(211, 7)	C 0	15.80	(365, 7)	C 0
24	7.10	(220, 7)	C 0	7.00	(142, 7)	C 0	7.00	(365, 7)	C 0	6.80	(314, 7)	C 0	6.70	(54, 7)	C 0
25	9.90	(304,18)	C 0	9.40	(365, 7)	C 0	9.30	(8, 7)	C 0	9.20	(220, 7)	C 0	8.80	(142, 7)	C 0
26	5.30	(142, 7)	C 0	5.30	(220, 7)	C 0	5.20	(177, 7)	C 0	5.00	(143, 7)	C 0	4.90	(365, 7)	C 0
27	17.00	(8, 7)	C 0	16.90	(304,18)	C 0	16.70	(365, 7)	C 0	16.50	(211, 7)	C 0	16.30	(21,18)	C 0
28	6.60	(304,18)	C 0	6.30	(142, 7)	C 0	6.30	(220, 7)	C 0	6.10	(365, 7)	C 0	6.00	(8, 7)	C 0
29	7.50	(347,18)	C 0	7.50	(315, 7)	C 0	7.50	(348, 7)	C 0	7.50	(358, 7)	C 0	7.30	(346, 7)	C 0

```
30  9.30 (365, 7) C 0   9.10 (220, 7) C 0   9.00 (  8, 7) C 0   8.90 (142, 7) C 0   8.10 (177, 7) C 0
31  5.40 (177, 7) C 0   5.30 (143, 7) C 0   5.20 (142, 7) C 0   5.00 (220, 7) C 0   4.80 ( 36, 7) C 0
32 17.90 (365, 7) C 0  17.90 (  8, 7) C 0  17.60 (220, 7) C 0  17.40 (142, 7) C 0  17.00 (211, 7) C 0
33  6.80 (304,18) C 0   6.40 (220, 7) C 0   6.40 (142, 7) C 0   6.20 (365, 7) C 0   6.20 (177, 7) C 0
34 10.00 (142, 7) C 0  10.00 (220, 7) C 0   9.80 (365, 7) C 0   9.50 (  8, 7) C 0   9.50 (177, 7) C 0
35  5.50 (177, 7) C 0   5.40 (143, 7) C 0   5.20 (304,18) C 0   5.20 (314, 7) C 0   4.90 (142, 7) C 0
36 18.70*(365, 7) C 0  18.70*(220, 7) C 0  18.50 (142, 7) C 0  18.30 (  8, 7) C 0  17.60 (177, 7) C 0
37  6.60 (177, 7) C 0   6.50 (142, 7) C 0   6.40 (304,18) C 0   6.30 (143, 7) C 0   6.30 (220, 7) C 0
38  9.90 (177, 7) C 0   9.90 (142, 7) C 0   9.80 (143, 7) C 0   9.80 (220, 7) C 0   9.40 (365, 7) C 0
39  5.50 (143, 7) C 0   5.40 (304,18) C 0   5.30 (177, 7) C 0   5.10 ( 20, 7) C 0   5.10 (134, 7) C 0
40  7.60 (143, 7) C 0   7.50 (177, 7) C 0   7.10 ( 20, 7) C 0   6.90 (304,18) C 0   6.90 (142, 7) C 0
41  5.10 ( 20, 7) C 0   4.90 (134, 7) C 0   4.90 (197, 7) C 0   4.70 (143, 7) C 0   4.70 (314, 7) C 0
42 12.20 (143, 7) C 0  12.20 (177, 7) C 0  11.70 (142, 7) C 0  11.40 ( 20, 7) C 0  11.20 (220, 7) C 0
43  7.00 ( 20, 7) C 0   6.90 (304,18) C 0   6.70 (134, 7) C 0   6.70 (197, 7) C 0   6.50 (143, 7) C 0
44  9.30 ( 20, 7) C 0   9.00 (134, 7) C 0   9.00 (143, 7) C 0   8.90 (197, 7) C 0   8.70 (177, 7) C 0
45  5.80 (134, 7) C 0   5.80 ( 20, 7) C 0   5.70 (197, 7) C 0   5.40 ( 23, 7) C 0   5.20 (304,18) C 0
46  6.40 ( 23, 7) C 0   6.40 (197, 7) C 0   6.30 (134, 7) C 0   6.30 (214, 7) C 0   6.20 (265, 7) C 0
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CAL3QHCR (Dated: 04244)

DATE : 10/26/11 PAGE: 9
TIME : 17:57:51

JOB: NBCU 2030 Traffic Modeling, TOGGExh, scaled 1000x 000 RUN: CAL3QHCR RUN

CALM DURATION FREQUENCY

```
  Hours of    Frequency
 Consecutive     of
 Calm Winds   Occurrence   (Julian day/hour ending) of Significant Occurrences

     1         483      (  2, 2)(  2,14)(  5,20)(  7, 8)(  8, 2)(  8,22)(  9, 1)(  9,11)(  9,20)(  9,23)
                        ( 10, 2)( 10, 6)( 10,17)( 10,22)( 11, 8)( 13, 2)( 13, 4)( 13,18)( 13,23)( 14, 6)
                        ( 14,24)( 15,10)( 16, 6)( 16,13)( 16,20)( 17, 5)( 17,10)( 17,13)( 17,17)( 18,18)
                        ( 18,24)( 19, 2)( 19,10)( 19,12)( 20,18)( 21, 4)( 21,17)( 21,23)( 22, 3)( 22, 6)
                        ( 22,10)( 24, 6)( 24, 9)( 25,22)( 26,10)( 26,23)( 30, 8)( 31,22)( 32, 3)( 32, 7)
                        ( 32,20)( 33, 4)( 34, 6)( 34,22)( 34,24)( 35, 4)( 35, 6)( 35, 8)( 35,21)( 36, 6)
                        ( 36,18)( 36,22)( 37, 9)( 37,23)( 38, 2)( 38, 6)( 39, 7)( 40,20)( 41, 2)( 41, 7)
                        ( 44, 1)( 45, 3)( 45, 8)( 45,11)( 46, 3)( 47, 8)( 47,11)( 48,21)( 50, 3)( 50, 7)
                        ( 53, 7)( 53,21)( 53,24)( 54, 9)( 57,19)( 59, 3)( 59, 6)( 65, 6)( 65,21)( 65,23)
                        ( 67, 2)( 67, 5)( 67, 7)( 70,22)( 72, 2)( 72, 8)( 73, 4)( 73, 7)( 74, 2)( 74, 4)
                        ( 76, 2)( 80, 7)( 80,22)( 81, 4)( 81,24)( 83, 4)( 86, 3)( 86, 5)( 88, 7)( 88,22)
                        ( 89, 2)( 89, 5)( 89,19)( 89,24)( 90, 8)( 93, 1)( 94, 9)( 94,22)( 95, 9)( 95,23)
                        ( 99, 2)(101, 6)(105, 2)(106, 3)(106, 5)(106, 7)(108,21)(110, 2)(121, 1)(124, 3)
                        (125, 7)(128, 5)(129, 4)(129,22)(132,21)(132,24)(133,10)(133,20)(133,23)(134, 6)
                        (134,20)(135, 2)(135, 4)(135, 7)(136, 2)(137, 6)(137, 9)(137,18)(138,21)(141, 4)
                        (141, 9)(141,24)(142, 5)(143, 2)(144, 4)(145, 4)(145, 7)(146,16)(148, 1)(148,24)
                        (149, 4)(149,22)(151, 5)(152, 8)(153, 5)(154, 5)(154, 7)(154,10)(155, 5)(157, 6)
                        (158, 3)(166,19)(167, 9)(170, 8)(172, 4)(173, 1)(173, 3)(173, 6)(173, 8)(174,24)
                        (175, 5)(176, 5)(177, 4)(177,10)(178, 5)(179, 3)(179, 8)(180, 5)(180, 8)(181, 1)
                        (181, 5)(182, 8)(184, 7)(188, 2)(189, 5)(189, 7)(190, 1)(191, 7)(192, 7)(193, 7)
                        (195, 3)(195, 5)(196, 3)(196, 5)(196, 8)(199, 2)(199, 5)(200, 8)(202, 7)(205, 5)
                        (206, 6)(207, 8)(208, 3)(209, 1)(209,24)(212, 5)(213, 3)(213, 6)(214, 4)(214, 8)
                        (215, 6)(217, 8)(217,24)(218, 8)(222, 8)(222,24)(223, 4)(223, 7)(224, 2)(225, 7)
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             (225,21)(226,23)(227, 1)(229, 5)(230, 7)(231, 2)(232,21)(232,23)(233, 2)(233, 5)
             (235, 8)(236, 1)(236, 4)(236, 8)(236,23)(237, 6)(238, 8)(239,22)(240,21)(241, 5)
             (242, 8)(243, 5)(244, 4)(245, 7)(247, 3)(247, 5)(247,22)(248, 2)(249, 9)(249,11)
             (250, 4)(250, 9)(250,24)(251, 6)(251, 9)(252, 2)(252, 6)(252, 9)(253, 4)(254, 5)
             (254,22)(254,24)(255, 4)(256, 2)(256, 4)(256, 7)(257, 1)(257, 5)(257, 7)(259,19)
             (260, 4)(260,23)(261,21)(261,24)(262, 2)(262,18)(264,22)(266, 9)(267, 5)(268, 1)
             (268, 9)(269, 3)(273, 1)(273, 7)(274, 1)(274,22)(275, 2)(275,10)(276,10)(276,12)
             (277, 1)(277, 5)(277, 8)(277,18)(278, 8)(278,23)(279, 6)(279, 8)(279,24)(280, 4)
             (281, 2)(281, 5)(282, 4)(282, 7)(283, 8)(284, 1)(284, 3)(284, 5)(285,20)(286, 5)
             (286,18)(287, 2)(287, 6)(287, 8)(287,10)(287,18)(288, 2)(288, 4)(288,21)(288,23)
             (289, 9)(289,23)(290, 7)(290,23)(291, 2)(292, 4)(292,11)(294, 8)(295, 2)(295, 8)
             (295,20)(295,24)(297, 5)(298, 7)(298, 9)(299,20)(299,23)(300, 4)(300, 6)(300,22)
             (301, 7)(301,22)(302, 4)(303,19)(304, 9)(304,17)(305,22)(306, 2)(306, 4)(306, 6)
             (306,10)(306,12)(307, 9)(307,18)(307,20)(308, 7)(308,10)(308,21)(308,23)(310,20)
             (310,23)(311,11)(312, 1)(312, 5)(312, 7)(312, 9)(312,22)(313, 7)(314, 2)(314, 9)
             (314,12)(314,19)(314,24)(315,22)(317,19)(318, 8)(318,18)(319, 7)(319,19)(320, 6)
             (321, 7)(321,21)(322, 1)(322,20)(323, 4)(324, 2)(324,19)(324,24)(326, 4)(326, 9)
             (326,20)(326,23)(327,10)(328, 7)(329, 1)(330, 4)(331, 1)(331,13)(333,19)(334,22)
             (335, 3)(335,22)(336, 1)(336, 3)(336,22)(337, 1)(337, 5)(337, 7)(337,17)(338, 4)
             (338, 8)(338,21)(338,24)(339,19)(339,21)(341,10)(341,20)(341,23)(342, 3)(342,12)
             (342,17)(342,23)(343, 1)(343, 7)(343,10)(343,19)(344, 3)(344, 6)(344,10)(344,12)
             (344,24)(345, 7)(345, 9)(345,11)(345,15)(345,21)(346,12)(347,23)(348, 5)(348,10)
             (348,17)(349, 2)(349, 7)(349,10)(349,19)(349,21)(349,24)(350, 3)(351, 5)(351,10)
             (352, 3)(352, 6)(352, 8)(353, 5)(353, 8)(353,19)(353,21)(353,23)(354, 6)(354,15)
             (355, 8)(357,20)(358,16)(359, 5)(359, 8)(359,22)(360,10)(360,17)(361,19)(362,24)
             (363, 2)(363, 4)(363,18)
  2     99    ( 7, 3)( 14,20)( 15, 5)( 16, 9)( 17,23)( 18, 2)( 19,22)( 23,23)( 25, 8)( 30, 5)
             ( 34, 9)( 37, 7)( 49,23)( 54, 4)( 58, 9)( 66,24)( 67,23)( 68, 2)( 68, 5)( 74,23)
             ( 76, 7)( 82, 6)( 84, 6)( 91, 1)( 93, 6)(127, 7)(129, 1)(143, 9)(143,24)(144, 8)
             (150, 5)(168, 3)(170, 6)(171, 6)(171, 9)(179, 6)(184, 5)(186, 5)(193, 1)(194, 4)
             (215,12)(227,10)(238, 6)(239, 3)(239, 9)(242, 5)(254, 1)(254, 8)(255, 9)(258, 1)
             (261, 4)(262, 6)(262,22)(263, 8)(264, 9)(268, 6)(271, 7)(275, 6)(280,10)(282,23)
             (286, 1)(287,23)(293, 8)(295, 6)(296, 3)(299, 5)(300, 9)(305,10)(307, 1)(311,23)
             (317, 5)(319,23)(322, 7)(323,18)(323,24)(324,10)(325, 4)(325,10)(328,10)(333, 1)
             (333, 6)(334, 8)(334,20)(339, 4)(339,10)(341, 4)(346,24)(348,22)(349, 5)(351,22)
             (352,18)(354,10)(354,19)(358, 9)(358,20)(360, 1)(361, 1)(363, 7)(365, 6)
  3     34    ( 12,21)( 17, 3)( 18,10)( 25,20)( 74, 8)( 88, 2)( 90, 4)( 91, 7)( 94, 7)( 95, 5)
             (134, 3)(137, 2)(169, 8)(222, 5)(228, 9)(251, 4)(258, 8)(270, 7)(278, 1)(279, 4)
             (288, 8)(311, 7)(313, 2)(315, 6)(319, 3)(323, 2)(323,10)(332,21)(337,24)(341, 8)
             (343, 5)(344,22)(350,24)(359, 2)
  4     12    ( 9, 7)( 39, 5)( 42, 4)( 49, 8)(131, 5)(141, 2)(152, 5)(201, 9)(278, 6)(292, 2)
             (313,24)(346, 4)
  5      3    ( 34, 3)(234, 8)(362, 6)
  6      2    (146, 7)(240, 8)
  8      2    (305, 6)(340, 6)
 13      1    ( 5,13)
```

Program terminated normally

CAL3QHCR (Dated: 04244)

DATE : 10/26/11 PAGE: 1
TIME : 17:57:52

JOB: NBCU 2030 Traffic Modeling, TOGGExh, scaled 1000x 000 RUN: CAL3QHCR RUN

General Information

Run start date: 1/ 1/81 Julian: 1
end date: 12/31/81 Julian: 365

A Tier 2 approach was used for input data preparation.

The MODE flag has been set to P for calculating PM averages.

Ambient background concentrations are excluded from the averages below.

Site & Meteorological Constants

VS = 0.0 CM/S VD = 0.0 CM/S Z0 = 44. CM ATIM = 60.

Met. Sfc. Sta. Id & Yr = 51100 81
Upper Air Sta. Id & Yr = 99999 81

Urban mixing heights were processed.

In 1981, Julian day 1 is a Thursday.

The patterns from the input file
have been assigned as follows:

Pattern # 1 is assigned to Monday.
Pattern # 1 is assigned to Tuesday.
Pattern # 1 is assigned to Wednesday.
Pattern # 1 is assigned to Thursday.
Pattern # 1 is assigned to Friday.
Pattern # 1 is assigned to Saturday.
Pattern # 1 is assigned to Sunday.

Link Data Constants - (Variable data in *.LNK file)

LINK DESCRIPTION	*	X1	Y1	X2	Y2	*	LENGTH (M)	BRG (DEG)	TYPE	H (M)	W (M)	NLANES
1. N1	*	376047.00	3776911.00	375971.00	3777044.00	*	153.	330.	AG	8.0	24.0	
2. N2	*	375971.00	3777044.00	375801.00	3777259.00	*	274.	322.	AG	10.0	24.0	

3. N3	* 375801.00	3777259.00	375674.00	3777409.00 *	197.	320.	AG	4.0	24.0
4. N4	* 375674.00	3777409.00	375550.00	3777560.00 *	195.	321.	AG	2.0	24.0
5. N5	* 375550.00	3777560.00	375455.00	3777664.00 *	141.	318.	AG	1.0	24.0
6. N6	* 375455.00	3777664.00	375345.00	3777743.00 *	135.	306.	AG	-5.0	24.0
7. N7	* 375345.00	3777743.00	375233.00	3777792.00 *	122.	294.	AG	-7.0	24.0

CAL3QHCR (Dated: 04244)

DATE : 10/26/11 PAGE: 2
TIME : 17:57:52

JOB: NBCU 2030 Traffic Modeling, TOGGExh, scaled 1000x 000 RUN: CAL3QHCR RUN

Link Data Constants - (Variable data in *.LNK file)

LINK DESCRIPTION	* X1	Y1	X2	Y2 *	LENGTH (M)	BRG (DEG)	TYPE	H (M)	W (M)	NLANES
8. N8	* 375233.00	3777792.00	374980.00	3777867.00 *	264.	287.	AG	-8.0	24.0	
9. S9	* 374975.00	3777837.00	375287.00	3777738.00 *	327.	108.	AG	-10.0	24.0	
10. S10	* 375287.00	3777738.00	375387.00	3777685.00 *	113.	118.	AG	-7.0	24.0	
11. S11	* 375387.00	3777685.00	375483.00	3777603.00 *	126.	131.	AG	-3.0	24.0	
12. S12	* 375483.00	3777603.00	375786.00	3777241.00 *	472.	140.	AG	2.0	24.0	
13. S13	* 375786.00	3777241.00	375946.00	3777042.00 *	255.	141.	AG	9.0	24.0	
14. S14	* 375946.00	3777042.00	376027.00	3776900.00 *	163.	150.	AG	8.0	24.0	

Receptor Data

RECEPTOR	* COORDINATES (M) X	Y	Z
1. R1_G	* 375432.56	3777792.75	8.8
2. R2_G	* 375465.00	3777807.00	22.2
3. R3_G	* 375473.06	3777763.50	19.3
4. R4_G	* 375505.50	3777777.75	36.0
5. R5_G	* 375506.47	3777814.50	43.5
6. R6_G	* 375513.41	3777734.00	29.2
7. R7_G	* 375544.47	3777746.50	44.8
8. R8_G	* 375546.94	3777785.25	47.7
9. R9_G	* 375547.78	3777697.75	29.9
10. R10_G	* 375564.97	3777633.75	16.9
11. R11_G	* 375578.22	3777709.50	39.2
12. R12_G	* 375581.53	3777660.75	26.8
13. R13_G	* 375582.44	3777750.25	41.8
14. R14_G	* 375598.53	3777596.75	15.7
15. R15_G	* 375611.97	3777672.75	34.1
16. R16_G	* 375615.25	3777624.00	23.0
17. R17_G	* 375616.19	3777713.25	35.0
18. R18_G	* 375630.22	3777558.00	10.2

19. R19_G	*	375645.47	3777635.50	26.9
20. R20_G	*	375647.19	3777585.50	17.8
21. R21_G	*	375661.94	3777519.50	17.5
22. R22_G	*	375677.16	3777597.00	25.0
23. R23_G	*	375677.72	3777452.00	3.4
24. R24_G	*	375678.88	3777546.75	26.6
25. R25_G	*	375693.62	3777480.75	21.2
26. R26_G	*	375708.88	3777558.25	37.5
27. R27_G	*	375709.66	3777413.50	4.0

Receptor Data

RECEPTOR	*	COORDINATES (M) X	Y	Z
28. R28_G	*	375710.59	3777508.25	34.8
29. R29_G	*	375724.62	3777587.25	35.9
30. R30_G	*	375725.44	3777442.25	24.9
31. R31_G	*	375740.59	3777519.50	37.7
32. R32_G	*	375741.94	3777375.50	4.8
33. R33_G	*	375742.31	3777469.50	35.3
34. R34_G	*	375757.72	3777404.00	22.4
35. R35_G	*	375772.38	3777481.00	37.9
36. R36_G	*	375774.25	3777337.25	6.0
37. R37_G	*	375774.56	3777431.25	34.3
38. R38_G	*	375790.03	3777365.75	22.8
39. R39_G	*	375804.66	3777442.75	36.2
40. R40_G	*	375806.84	3777393.00	27.2
41. R41_G	*	375816.22	3777476.50	36.0
42. R42_G	*	375822.31	3777327.50	11.5
43. R43_G	*	375836.97	3777404.75	23.5
44. R44_G	*	375839.12	3777355.00	14.1
45. R45_G	*	375848.50	3777438.25	27.5
46. R46_G	*	375882.75	3777397.75	17.4

Model Results

Remarks : In search of the wind direction corresponding to the maximum concentration, only the first direction, of the directions with the same maximum concentrations, is indicated as the maximum.

* MAXIMUM HOURLY CONCENTRATIONS WITH ANY AMBIENT BACKGROUND CONCENTRATIONS (BKG) ADDED

* (MICROGRAMS/M**3)

* REC1 REC2 REC3 REC4 REC5 REC6 REC7 REC8 REC9 REC10

```
--------*------------------------------------------------------------------------------
MAX+BKG * 10007.4  7300.0  8585.3  5906.6  4880.6  7936.9  5059.0  4486.4 10648.1 15844.4
- BKG   *     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0
--------*------------------------------------------------------------------------------
 MAX    * 10007.4  7300.0  8585.3  5906.6  4880.6  7936.9  5059.0  4486.4 10648.1 15844.4
WIND DIR*    150     153     153     153     155     278     153     155     284     289
JULIAN  *    211       8       8       8     365     334       8     365       9     347
HOUR    *      7       7       7       7       7      18       7       7      18      18
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CAL3QHCR (Dated: 04244)

DATE : 10/26/11 PAGE: 4
TIME : 17:57:52

JOB: NBCU 2030 Traffic Modeling, TOGGExh, scaled 1000x 000 RUN: CAL3QHCR RUN

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        * MAXIMUM HOURLY CONCENTRATIONS WITH ANY AMBIENT BACKGROUND
CONCENTRATIONS (BKG) ADDED
        *  (MICROGRAMS/M**3)
        *   REC11   REC12   REC13   REC14   REC15   REC16   REC17   REC18   REC19   REC20
--------*------------------------------------------------------------------------------
MAX+BKG *  6999.2 12703.4  4870.2 11370.0  9275.7 12771.8  5390.1 15710.5 10443.7  9640.3
- BKG   *     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0
--------*------------------------------------------------------------------------------
 MAX    *  6999.2 12703.4  4870.2 11370.0  9275.7 12771.8  5390.1 15710.5 10443.7  9640.3
WIND DIR*    284     289     157     289     284     289     158     298     286     289
JULIAN  *      9     347     220     347       9     347     142     304     358     347
HOUR    *     18      18       7      18      18      18       7      18       7      18

        *   REC21   REC22   REC23   REC24   REC25   REC26   REC27   REC28   REC29   REC30
--------*------------------------------------------------------------------------------
MAX+BKG * 13821.7 10340.7 20482.3  8089.1 11242.2  6069.3 19559.5  7524.6  8493.1 10513.6
- BKG   *     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0
--------*------------------------------------------------------------------------------
 MAX    * 13821.7 10340.7 20482.3  8089.1 11242.2  6069.3 19559.5  7524.6  8493.1 10513.6
WIND DIR*    298     289     298     157     298     158     298     298     289     155
JULIAN  *    304     347     304     220     304     142     304     304     347     365
HOUR    *     18      18      18       7      18       7      18      18      18       7

        *   REC31   REC32   REC33   REC34   REC35   REC36   REC37   REC38   REC39   REC40
--------*------------------------------------------------------------------------------
MAX+BKG *  6127.3 20513.2  7842.1 11469.4  6195.7 21389.9  7466.1 11393.5  6261.3  8683.0
- BKG   *     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0
--------*------------------------------------------------------------------------------
 MAX    *  6127.3 20513.2  7842.1 11469.4  6195.7 21389.9  7466.1 11393.5  6261.3  8683.0
WIND DIR*    161     155     298     157     163     157     161     158     163     163
JULIAN  *    177     365     304     220     143     220     177     142     143     143
HOUR    *      7       7      18       7       7       7       7       7       7       7

        *   REC41   REC42   REC43   REC44   REC45   REC46
--------*----------------------------------------------
MAX+BKG *  5760.5 13892.7  7946.8 10564.9  6575.0  7283.0
- BKG   *     0.0     0.0     0.0     0.0     0.0     0.0
--------*----------------------------------------------
```

MAX * 5760.5 13892.7 7946.8 10564.9 6575.0 7283.0
WIND DIR* 168 163 168 168 171 172
JULIAN * 20 143 20 20 134 197
HOUR * 7 7 7 7 7 7

CAL3QHCR (Dated: 04244)

DATE : 10/26/11 PAGE: 5
TIME : 17:57:52

JOB: NBCU 2030 Traffic Modeling, TOGGExh, scaled 1000x 000 RUN: CAL3QHCR RUN

THE HIGHEST CONCENTRATION OF21389.90 UG/M**3 OCCURRED AT RECEPTOR REC36.

CAL3QHCR (Dated: 04244)

DATE : 10/26/11 PAGE: 6
TIME : 17:58:11

JOB: NBCU 2030 Traffic Modeling, TOGGExh, scaled 1000x 000 RUN: CAL3QHCR RUN

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Output Section
==============

NOTES PERTAINING TO THE REPORT

1. THE HIGHEST AVERAGE IN EACH OF THE FIRST TWO COLUMNS OF EACH TABLE BELOW ARE SUFFIXED BY AN ASTERISK (*).
FOR PM OUTPUT, THERE IS ONLY ONE COLUMN AND ASTERISK FOR THE ANNUAL AVERAGE/PERIOD OF CONCERN TABLE.

2. THE NUMBERS IN PARENTHESES ARE THE JULIAN DAY AND ENDING HOUR FOR THE PRECEDING AVERAGE.

3. THE NUMBER OF CALM HOURS USED IN PRODUCING EACH AVERAGE ARE PREFIXED BY A C.

PRIMARY AND SECONDARY AVERAGES.

FIVE HIGHEST 24-HOUR END-TO-END AVERAGE CONCENTRATIONS IN MICROGRAMS/M**3
EXCLUDING AMBIENT BACKGROUND CONCENTRATIONS.

Highest Second Highest Third Highest Fourth Highest Fifth Highest
Rcptr Ending Ending Ending Ending Ending
No. Conc Day Hr Calm Conc Day Hr Calm Conc Day Hr Calm Conc Day Hr Calm Conc Day Hr Calm

12815.62 (134,24) C 52587.90 (145,24) C 22435.29 (276,24) C 22350.62 (300,24) C 52309.52 (275,24) C 4
21984.64 (134,24) C 51735.47 (145,24) C 21685.52 (300,24) C 51621.48 (276,24) C 21592.77 (350,24) C 4
32339.04 (134,24) C 52076.02 (145,24) C 22051.61 (300,24) C 52044.54 (350,24) C 41965.78 (276,24) C 2
41224.73 (134,24) C 51193.29 (350,24) C 41187.39 (300,24) C 51185.47 (332,24) C 41092.88 (145,24) C 2
5 993.35 (134,24) C 5 954.98 (300,24) C 5 923.67 (350,24) C 4 877.19 (332,24) C 4 867.13 (145,24) C 2
61754.24 (332,24) C 41733.71 (350,24) C 41708.61 (295,24) C 61538.05 (9,24) C 81532.72 (35,24) C 4

7 975.64 (332,24) C 4 938.39 (350,24) C 4 883.28 (295,24) C 6 874.74 (35,24) C 4 863.28 (300,24) C 5
8 845.73 (350,24) C 4 839.22 (134,24) C 5 838.23 (300,24) C 5 823.37 (332,24) C 4 786.52 (35,24) C 4
91995.38 (295,24) C 61884.43 (350,24) C 41850.87 (312,24) C 61750.88 (332,24) C 41684.29 (9,24) C 8
103391.17 (350,24) C 43278.06 (312,24) C 63093.12 (295,24) C 62965.22 (9,24) C 82917.90 (251,24) C 5
111372.64 (295,24) C 61309.39 (350,24) C 41263.48 (332,24) C 41234.36 (312,24) C 61148.81 (9,24) C 8
122566.13 (295,24) C 62459.88 (312,24) C 62397.65 (350,24) C 42104.93 (80,24) C 22039.24 (358,24) C 6
131024.74 (134,24) C 51018.15 (350,24) C 4 961.84 (300,24) C 5 958.48 (332,24) C 4 923.50 (35,24) C 4
143185.43 (350,24) C 42899.49 (134,24) C 52792.59 (312,24) C 62755.79 (9,24) C 82697.08 (346,24) C 7
151712.24 (295,24) C 61660.08 (350,24) C 41637.58 (312,24) C 61423.10 (332,24) C 41407.80 (9,24) C 8
162590.51 (350,24) C 42572.82 (312,24) C 62423.08 (295,24) C 62233.02 (251,24) C 52209.78 (9,24) C 8
171306.16 (134,24) C 51286.90 (350,24) C 41159.00 (300,24) C 51142.36 (332,24) C 41093.09 (35,24) C 4
184022.43 (350,24) C 43797.08 (134,24) C 53782.76 (9,24) C 83665.35 (312,24) C 63573.74 (346,24) C 7
192180.29 (350,24) C 42135.79 (312,24) C 62124.25 (295,24) C 61846.10 (80,24) C 21810.69 (358,24) C 6
202634.16 (350,24) C 42510.85 (134,24) C 52315.34 (312,24) C 62279.46 (9,24) C 82238.43 (346,24) C 7
212897.11 (341,24) C 82879.67 (350,24) C 42725.44 (9,24) C 82641.74 (312,24) C 62639.38 (134,24) C 5
222201.15 (350,24) C 42144.05 (312,24) C 61913.34 (295,24) C 61879.86 (251,24) C 51876.51 (9,24) C 8
236738.27*(350,24) C 46719.89*(134,24) C 56477.72 (9,24) C 86381.95 (346,24) C 76282.18 (312,24) C 6
241889.60 (350,24) C 41711.81 (134,24) C 51696.85 (341,24) C 81690.19 (312,24) C 61685.70 (38,24) C 2
252419.70 (341,24) C 82282.71 (350,24) C 42191.83 (8,24) C 22160.62 (317,24) C 32137.78 (134,24) C 5
261238.81 (350,24) C 41148.56 (134,24) C 51116.71 (18,24) C 71104.11 (312,24) C 61094.73 (38,24) C 2

CAL3QHCR (Dated: 04244)

DATE : 10/26/11 PAGE: 7
TIME : 17:58:11

JOB: NBCU 2030 Traffic Modeling, TOGGExh, scaled 1000x 000 RUN: CAL3QHCR RUN

FIVE HIGHEST 24-HOUR END-TO-END AVERAGE CONCENTRATIONS IN MICROGRAMS/M**3
EXCLUDING AMBIENT BACKGROUND CONCENTRATIONS.

Highest Second Highest Third Highest Fourth Highest Fifth Highest
Rcptr Ending Ending Ending Ending Ending
No. Conc Day Hr Calm Conc Day Hr Calm Conc Day Hr Calm Conc Day Hr Calm Conc Day Hr
Calm

276460.80 (134,24) C 56447.31 (350,24) C 46181.43 (9,24) C 86136.15 (346,24) C 76028.03 (312,24) C 6
281545.96 (341,24) C 81293.67 (350,24) C 41290.66 (38,24) C 21281.58 (8,24) C 21259.62 (18,24) C 7
291656.65 (312,24) C 61634.44 (350,24) C 41512.16 (295,24) C 61411.24 (251,24) C 51380.18 (18,24) C 7
302007.34 (341,24) C 81905.28 (8,24) C 21817.09 (350,24) C 41811.68 (317,24) C 31767.23 (332,24) C 4
311234.49 (350,24) C 41183.39 (134,24) C 51157.25 (341,24) C 81136.62 (18,24) C 71126.43 (38,24) C 2
326360.15 (134,24) C 56245.75 (350,24) C 45958.98 (346,24) C 75927.61 (9,24) C 85859.27 (312,24) C 6
331566.28 (341,24) C 81299.42 (8,24) C 21231.55 (350,24) C 41212.06 (38,24) C 21205.96 (304,24) C 4
342169.95 (134,24) C 52126.93 (341,24) C 82124.38 (350,24) C 42095.18 (8,24) C 22044.50 (317,24) C 3
351252.60 (341,24) C 81218.62 (134,24) C 51217.47 (350,24) C 41136.76 (18,24) C 71130.44 (38,24) C 2
366295.61 (134,24) C 55953.65 (350,24) C 45707.68 (346,24) C 75606.48 (9,24) C 85556.52 (312,24) C 6
371519.63 (341,24) C 81306.61 (134,24) C 51295.45 (8,24) C 21265.54 (350,24) C 41205.63 (317,24) C 3
382267.21 (134,24) C 52093.28 (341,24) C 82081.57 (8,24) C 22078.51 (350,24) C 42012.60 (317,24) C 3
391357.77 (134,24) C 51305.83 (341,24) C 81278.45 (350,24) C 41160.08 (18,24) C 71141.17 (38,24) C 2
401953.14 (134,24) C 51766.82 (350,24) C 41761.60 (341,24) C 81596.29 (9,24) C 81570.30 (8,24) C 2
411415.75 (134,24) C 51327.39 (350,24) C 41171.97 (312,24) C 61143.89 (346,24) C 71140.27 (18,24) C 7
424100.29 (134,24) C 53572.33 (350,24) C 43384.19 (346,24) C 73357.14 (9,24) C 83312.44 (312,24) C 6
432218.64 (134,24) C 51961.89 (350,24) C 41781.89 (9,24) C 81753.36 (346,24) C 71723.84 (312,24) C 6
443229.40 (134,24) C 52787.56 (350,24) C 42580.42 (9,24) C 82575.21 (346,24) C 72487.92 (312,24) C 6
451857.93 (134,24) C 51675.51 (350,24) C 41503.81 (346,24) C 71492.58 (9,24) C 81473.52 (312,24) C 6

462314.37 (134,24) C 52034.26 (350,24) C 41878.87 (346,24) C 71865.26 (9,24) C 81791.48 (312,24) C 6

THE HIGHEST ANNUAL AVERAGE CONCENTRATIONS
IN MICROGRAMS/M**3
EXCLUDING AMBIENT BACKGROUND CONCENTRATIONS.

Receptor Number	Maximum Conc	Ending Day Hr	Calm
1	1150.29	(365,24) C	887
2	772.82	(365,24) C	887
3	978.95	(365,24) C	887
4	552.36	(365,24) C	887
5	427.40	(365,24) C	887
6	762.90	(365,24) C	887
7	418.17	(365,24) C	887
8	377.99	(365,24) C	887
9	762.63	(365,24) C	887
10	1378.04	(365,24) C	887
11	527.77	(365,24) C	887
12	902.97	(365,24) C	887
13	435.82	(365,24) C	887
14	1345.11	(365,24) C	887

THE HIGHEST ANNUAL AVERAGE CONCENTRATIONS
IN MICROGRAMS/M**3
EXCLUDING AMBIENT BACKGROUND CONCENTRATIONS.

Receptor Number	Maximum Conc	Ending Day Hr	Calm
15	630.80	(365,24) C	887
16	991.98	(365,24) C	887
17	527.68	(365,24) C	887
18	1728.86	(365,24) C	887
19	806.74	(365,24) C	887
20	1079.72	(365,24) C	887
21	1264.60	(365,24) C	887
22	829.79	(365,24) C	887
23	3165.42*	(365,24) C	887
24	776.93	(365,24) C	887
25	1028.78	(365,24) C	887
26	488.25	(365,24) C	887
27	3047.48	(365,24) C	887
28	552.52	(365,24) C	887
29	579.09	(365,24) C	887
30	839.58	(365,24) C	887
31	488.04	(365,24) C	887
32	2951.02	(365,24) C	887
33	536.99	(365,24) C	887

34	960.46	(365,24)	C 887
35	485.36	(365,24)	C 887
36	2809.05	(365,24)	C 887
37	550.59	(365,24)	C 887
38	945.75	(365,24)	C 887
39	511.99	(365,24)	C 887
40	749.33	(365,24)	C 887
41	505.14	(365,24)	C 887
42	1601.51	(365,24)	C 887
43	793.96	(365,24)	C 887
44	1186.83	(365,24)	C 887
45	649.23	(365,24)	C 887
46	803.73	(365,24)	C 887

JOB: NBCU 2030 Traffic Modeling, TOGGExh, scaled 1000x 000 RUN: CAL3QHCR RUN

CALM DURATION FREQUENCY

Hours of Consecutive Calm Winds	Frequency of Occurrence	(Julian day/hour ending) of Significant Occurrences
1	483	(2, 2)(2,14)(5,20)(7, 8)(8, 2)(8,22)(9, 1)(9,11)(9,20)(9,23) (10, 2)(10, 6)(10,17)(10,22)(11, 8)(13, 2)(13, 4)(13,18)(13,23)(14, 6) (14,24)(15,10)(16, 6)(16,13)(16,20)(17, 5)(17,10)(17,13)(17,17)(18,18) (18,24)(19, 2)(19,10)(19,12)(20,18)(21, 4)(21,17)(21,23)(22, 3)(22, 6) (22,10)(24, 6)(24, 9)(25,22)(26,10)(26,23)(30, 8)(31,22)(32, 3)(32, 7) (32,20)(33, 4)(34, 6)(34,22)(34,24)(35, 4)(35, 6)(35, 8)(35,21)(36, 6) (36,18)(36,22)(37, 9)(37,23)(38, 2)(38, 6)(39, 7)(40,20)(41, 2)(41, 7) (44, 1)(45, 3)(45, 8)(45,11)(46, 3)(47, 8)(47,11)(48,21)(50, 3)(50, 7) (53, 7)(53,21)(53,24)(54, 9)(57,19)(59, 3)(59, 6)(65, 6)(65,21)(65,23) (67, 2)(67, 5)(67, 7)(70,22)(72, 2)(72, 8)(73, 4)(73, 7)(74, 2)(74, 4) (76, 2)(80, 7)(80,22)(81, 4)(81,24)(83, 4)(86, 3)(86, 5)(88, 7)(88,22) (89, 2)(89, 5)(89,19)(89,24)(90, 8)(93, 1)(94, 9)(94,22)(95, 9)(95,23) (99, 2)(101, 6)(105, 2)(106, 3)(106, 5)(106, 7)(108,21)(110, 2)(121, 1)(124, 3) (125, 7)(128, 5)(129, 4)(129,22)(132,21)(132,24)(133,10)(133,20)(133,23)(134, 6) (134,20)(135, 2)(135, 4)(135, 7)(136, 2)(137, 6)(137, 9)(137,18)(138,21)(141, 4) (141, 9)(141,24)(142, 5)(143, 2)(144, 4)(145, 4)(145, 7)(146,16)(148, 1)(148,24) (149, 4)(149,22)(151, 5)(152, 8)(153, 5)(154, 5)(154, 7)(154,10)(155, 5)(157, 6) (158, 3)(166,19)(167, 9)(170, 8)(172, 4)(173, 1)(173, 3)(173, 6)(173, 8)(174,24) (175, 5)(176, 5)(177, 4)(177,10)(178, 5)(179, 3)(179, 8)(180, 5)(180, 8)(181, 1) (181, 5)(182, 8)(184, 7)(188, 2)(189, 5)(189, 7)(190, 1)(191, 7)(192, 7)(193, 7) (195, 3)(195, 5)(196, 3)(196, 5)(196, 8)(199, 2)(199, 5)(200, 8)(202, 7)(205, 5) (206, 6)(207, 8)(208, 3)(209, 1)(209,24)(212, 5)(213, 3)(213, 6)(214, 4)(214, 8) (215, 6)(217, 8)(217,24)(218, 8)(222, 8)(222,24)(223, 4)(223, 7)(224, 2)(225, 7) (225,21)(226,23)(227, 1)(229, 5)(230, 7)(231, 2)(232,21)(232,23)(233, 2)(233, 5) (235, 8)(236, 1)(236, 4)(236, 8)(236,23)(237, 6)(238, 8)(239,22)(240,21)(241, 5) (242, 8)(243, 5)(244, 4)(245, 7)(247, 3)(247, 5)(247,22)(248, 2)(249, 9)(249,11) (250, 4)(250, 9)(250,24)(251, 6)(251, 9)(252, 2)(252, 6)(252, 9)(253, 4)(254, 5)

```
               (254,22)(254,24)(255, 4)(256, 2)(256, 4)(256, 7)(257, 1)(257, 5)(257, 7)(259,19)
               (260, 4)(260,23)(261,21)(261,24)(262, 2)(262,18)(264,22)(266, 9)(267, 5)(268, 1)
               (268, 9)(269, 3)(273, 1)(273, 7)(274, 1)(274,22)(275, 2)(275,10)(276,10)(276,12)
               (277, 1)(277, 5)(277, 8)(277,18)(278, 8)(278,23)(279, 6)(279, 8)(279,24)(280, 4)
               (281, 2)(281, 5)(282, 4)(282, 7)(283, 8)(284, 1)(284, 3)(284, 5)(285,20)(286, 5)
               (286,18)(287, 2)(287, 6)(287, 8)(287,10)(287,18)(288, 2)(288, 4)(288,21)(288,23)
               (289, 9)(289,23)(290, 7)(290,23)(291, 2)(292, 4)(292,11)(294, 8)(295, 2)(295, 8)
               (295,20)(295,24)(297, 5)(298, 7)(298, 9)(299,20)(299,23)(300, 4)(300, 6)(300,22)
               (301, 7)(301,22)(302, 4)(303,19)(304, 9)(304,17)(305,22)(306, 2)(306, 4)(306, 6)
               (306,10)(306,12)(307, 9)(307,18)(307,20)(308, 7)(308,10)(308,21)(308,23)(310,20)
               (310,23)(311,11)(312, 1)(312, 5)(312, 7)(312, 9)(312,22)(313, 7)(314, 2)(314, 9)
               (314,12)(314,19)(314,24)(315,22)(317,19)(318, 8)(318,18)(319, 7)(319,19)(320, 6)
               (321, 7)(321,21)(322, 1)(322,20)(323, 4)(324, 2)(324,19)(324,24)(326, 4)(326, 9)
               (326,20)(326,23)(327,10)(328, 7)(329, 1)(330, 4)(331, 1)(331,13)(333,19)(334,22)
               (335, 3)(335,22)(336, 1)(336, 3)(336,22)(337, 1)(337, 5)(337, 7)(337,17)(338, 4)
               (338, 8)(338,21)(338,24)(339,19)(339,21)(341,10)(341,20)(341,23)(342, 3)(342,12)
               (342,17)(342,23)(343, 1)(343, 7)(343,10)(343,19)(344, 3)(344, 6)(344,10)(344,12)
               (344,24)(345, 7)(345, 9)(345,11)(345,15)(345,21)(346,12)(347,23)(348, 5)(348,10)
               (348,17)(349, 2)(349, 7)(349,10)(349,19)(349,21)(349,24)(350, 3)(351, 5)(351,10)
               (352, 3)(352, 6)(352, 8)(353, 5)(353, 8)(353,19)(353,21)(353,23)(354, 6)(354,15)
               (355, 8)(357,20)(358,16)(359, 5)(359, 8)(359,22)(360,10)(360,17)(361,19)(362,24)
               (363, 2)(363, 4)(363,18)
   2      99    ( 7, 3)( 14,20)( 15, 5)( 16, 9)( 17,23)( 18, 2)( 19,22)( 23,23)( 25, 8)( 30, 5)
               ( 34, 9)( 37, 7)( 49,23)( 54, 4)( 58, 9)( 66,24)( 67,23)( 68, 2)( 68, 5)( 74,23)
               ( 76, 7)( 82, 6)( 84, 6)( 91, 1)( 93, 6)(127, 7)(129, 1)(143, 9)(143,24)(144, 8)
               (150, 5)(168, 3)(170, 6)(171, 6)(171, 9)(179, 6)(184, 5)(186, 5)(193, 1)(194, 4)
               (215,12)(227,10)(238, 6)(239, 3)(239, 9)(242, 5)(254, 1)(254, 8)(255, 9)(258, 1)
               (261, 4)(262, 6)(262,22)(263, 8)(264, 9)(268, 6)(271, 7)(275, 6)(280,10)(282,23)
               (286, 1)(287,23)(293, 8)(295, 6)(296, 3)(299, 5)(300, 9)(305,10)(307, 1)(311,23)
               (317, 5)(319,23)(322, 7)(323,18)(323,24)(324,10)(325, 4)(325,10)(328,10)(333, 1)
               (333, 6)(334, 8)(334,20)(339, 4)(339,10)(341, 4)(346,24)(348,22)(349, 5)(351,22)
               (352,18)(354,10)(354,19)(358, 9)(358,20)(360, 1)(361, 1)(363, 7)(365, 6)
   3      34    ( 12,21)( 17, 3)( 18,10)( 25,20)( 74, 8)( 88, 2)( 90, 4)( 91, 7)( 94, 7)( 95, 5)
               (134, 3)(137, 2)(169, 8)(222, 5)(228, 9)(251, 4)(258, 8)(270, 7)(278, 1)(279, 4)
               (288, 8)(311, 7)(313, 2)(315, 6)(319, 3)(323, 2)(323,10)(332,21)(337,24)(341, 8)
               (343, 5)(344,22)(350,24)(359, 2)
   4      12    ( 9, 7)( 39, 5)( 42, 4)( 49, 8)(131, 5)(141, 2)(152, 5)(201, 9)(278, 6)(292, 2)
               (313,24)(346, 4)
   5       3   ( 34, 3)(234, 8)(362, 6)
   6       2   (146, 7)(240, 8)
   8       2   (305, 6)(340, 6)
  13       1    ( 5,13)
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Program terminated normally

Appendix FEIR-9

Biological Resources Associated with NBC Universal Plan

GLENN LUKOS ASSOCIATES

May 11, 2011

Mark Lyum
NBC Universal
100 Universal City Plaza
Universal City, California 91608

SUBJECT: Biological Resources Associated with NBC Universal Plan, Los Angeles County

Dear Mr. Lyum:

The purpose of this letter is to supplement the information in our Biological Site Assessment for the NBC Universal Evolution Plan (Project) and to respond to comments regarding: (1) potential impacts to Canada goose (*Branta canadensis*) relative to the NBCU Evolution Plan; (2) potential impacts to biological resources from increased shading associated with implementation of the Project; and (3) overall impacts of the proposed NBCU Evolution Plan on the ecosystem.

A. CANADA GOOSE

The Canada goose was observed at the Project Site during a field visit conducted by GLA in November 2006; however, because the species has no special status at the Federal, State, or local levels and in fact is widespread and common and under no current threats, no analysis of potential impacts to this species was included in the Biological Site Assessment report prepared by GLA. The following section discusses the current population trends and status of the Canada goose (*Branta canadensis*) in the Los Angeles region as summarized in current literature, and provides additional information regarding the potential impacts to the species that could result from implementation of the proposed Project.

SPECIES RANGE AND NATURAL HISTORY

The Canada goose is a large migratory goose with a brownish body, a long black neck and head, and a conspicuous white cheek patch. The breeding range of this species stretches from Alaska at the northwest, across Canada to the eastern coast of Canada, and south to the central United States. Occurrences of the Canada goose in southern California and the Los Angeles region are limited to wintering populations. Canada geese prefer habitats near water, grassy fields, and grain fields, and tend to be especially abundant in parks, airports, golf courses, and other areas with expansive lawns.

CONSERVTION STATUS

The Canada goose has no special status at the Federal, State, or local levels, and the IUCN Red List status is "Least Concern". The Breeding Bird Survey (U.S. Geological Survey and Canadian Wildlife Service) and Christmas Bird Count (National Audubon Society) both show that all populations in North America are increasing (except the Aleutian Canada Goose population, which has been known to winter as far south as the Central Valley of California and therefore would not occur on the Project Site). In many parts of the United States, the Canada goose species is considered a nuisance (for eating grass or fouling lawns) or even a hazard (around airports, where collisions with planes can be very dangerous). It is estimated that hunters harvest approximately 2.6 million Canada Geese in North America without apparent adverse impact on population trends.

OCCURENCE ON THE PROJECT SITE

The Canada goose only appears in small numbers on the Project Site for wintering or migratory stopovers, and has no special status. This behavior would not be substantially impacted by proposed new development of the Project Site, as suitable foraging habitat near water features would still be present following Project completion. As such, the Project would result in less than significant impacts on the Canada Goose.

B. INCREASED SHADING

Plants and animals typically found around the Project Site (e.g. South Weddington Park, the Campo, residences surrounding the Project Site, and the Lakeside Golf Course) are not special status species, and instead are common urban adapted plants and animals. Therefore any potential impacts to these species would not be significant. Further, the potential increased morning and evening shading that is projected for the adjacent properties is not of sufficient duration to significantly impact landscaping and/or the common urban adapted plants and animals that occur on these properties. Typically, significant changes in shading patterns (both in duration and overall scope of shading) would need to occur in order to significantly impact landscaping and other biological resources in an urban area. For these reasons, the Project's biological impacts related to increased shading at nearby residential areas, parks, golf courses, and associated biological resources immediately surrounding the Project Site would be less than significant.

C. INCREASED NIGHT LIGHTING

Potential impacts associated with night lighting and general noise from the Project Site were addressed in Section 5.5.1 of the Biological Site Assessment, which determined that there would be no significant impacts to birds or other wildlife that remain on the site following construction. To reiterate, following implementation of the Project, the site is expected to continue to support a suite of common birds as well as other common wildlife species. Such species are highly adapted to the urban environment, which includes adaptations to night lighting as well as noise levels typical of the urban environment. To the extent that lighting or noise has any effect on such species, such impacts would not be considered significant when considered in the context of the CEQA thresholds used to determine significance.

Further, in considering potential effects to species on the Project Site or on adjacent areas, it is important to recognize that the Project Site currently has extensive night lighting as much of the Project Site is already developed. Furthermore, the Project Site is situated within the Los Angeles Basin, which is a source of extensive nightlight. Incrementally, changes in the Project will not produce a measurable change in night light spillage such that the species in adjacent areas would experience a measurable change. Relative to Griffith Park, it is important to note that the park is completely surrounded by development including two freeways with many thousands of cars, such that the incremental changes in the Project from current conditions to ultimate condition will not have a measurable impact on birds or wildlife. Large tracts of open space associated with the Santa Monica Mountains are approximately seven miles to the west and there would be no measurable affect on wildlife. Weddington Park (South and North) includes baseball fields and consists largely of turf grass and is best characterized as an urban park(s) within an urban matrix with a predominance of ornamental vegetation and would not be adversely affected by night lighting from the Project. The reach of the Los Angeles River, which runs along the northern boundary of the site is a fully concrete channel that supports no vegetation, exhibiting essentially no habitat values for birds or other wildlife other than highly urban-adapted species such as killdeer or rock dove (aka., common pigeon). Night light spillage or shading would have no adverse impacts to biological resources associated with subject the reach of the Los Angeles River.

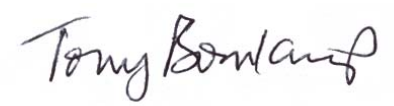
D. IMPACTS TO ECOSYSTEM

The impacts to trees on the Project Site have been fully identified and where significant impacts have been identified, mitigation measures have been proposed such that any significant impacts to trees have been fully mitigated. See Section IV.I, Biota, of the Draft EIR. Additionally, the DEIR carefully evaluated a wide suite of listed and otherwise special-status species to determine whether the Project is consistent with the City's CEQA Guidelines, including ecosystem impacts, and found that the Project would not result in significant impacts to listed or special-status plants or animals. As already noted, impacts to trees such as oaks and sycamores, are fully addressed and subject to a comprehensive mitigation program.

If you have any questions regarding the findings of this report, please contact me at (949) 837-0404, ext 41.

Sincerely,

GLENN LUKOS ASSOCIATES, INC.



Tony Bomkamp
Senior Biologist

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Appendix FEIR-10

NBC Evolution Plan Oak Tree Report Response to Comment

DUDEK

111 PACIFICA, SUITE 230
IRVINE, CALIFORNIA 92618
T 949.450.2525 F 949.450.2626

May 17, 2011 6152

Mark Lyum
Project Manager
Universal City Studios LLLP, L.P.
100 Universal City Plaza
Universal City, California 91608

Subject: NBC Universal Evolution Plan Oak Tree Report Response to Comment

Dear Mr. Lyum:

In response to a public comment on the NBC Universal Evolution Plan Tree Report (November 2010), I submit this letter which clarifies Tree Report Table 11 – Replacement Canopy (20-Year Growth Predictions for Container Stock).

Table 11 (copied directly from the November 2010 Tree Report) is provided on the next page. As indicated, the table provides 20 year growth projections for various commonly available planter stock sizes for three tree species: Coast live oak (*Quercus agrifolia*), California sycamore (*Platanus racemosa*), and Southern California black walnut (*Juglans californica*).

The growth rates depicted in Table 11 were estimated based on the extensive experience of the Project Principal with 35+ years of urban forester and nurseryman experience in Los Angeles County and Orange County and interviews of local tree growers and restoration specialist in Southern California, and referenced studies and sources. Based on these sources, Table 11 values are considered conservative estimates of tree growth over a 20 year period, given each of the three tree species' growth habits. The table provides growth estimates that are achievable. The following sections discuss various sources that support the growth chart projections.

Tree Growth Rates

Coast Live Oak

Oak trees, a moderately fast growing species, are projected to grow from 20 feet tall to 28 feet tall with 10 to 22 foot wide canopy spreads over the 20 year period. This estimate compares favorably with the Urban Forest Ecosystem Institute rating that coast live oaks grow 25-inches or more per year. Tree of

TABLE 11
Replacement Canopy
(20-Year Growth Predictions for Container Stock)

Stock Size	Height (feet)	Canopy Spread (feet)	Canopy Area (square feet)
Coast Live Oak			
Seedlings	20	10	79
1 gallon	25	15	177
5 gallon	26	17	227
15 gallon	26	18	254
24-inch box	26	19	284
36-inch box	27	20	314
48-inch box	27	21	346
60-inch box	28	22	380
California Sycamore			
Seedlings	38	18	254
1 gallon	40	20	314
5 gallon	42	22	380
15 gallon	42	28	616
24-inch box	45	30	707
36-inch box	50	35	962
48-inch box	50	38	1134
60-inch box	50	40	1257
California Black Walnut			
Seedlings	18	22	380
1 gallon	18	22	380
5 gallon	19	23	415
15 gallon	19	25	491
24-inch box	20	25	491
36-inch box	21	28	616
48-inch box	24	30	707
60-inch box	25	33	855

Life Nursery in Orange County indicates coast live oak trees grow 1 to 3 feet per year and may mature (40 feet tall and 40 feet wide canopy) within 15 to 20 years (see attached *Quercus agrifolia* profile). A study documented in the Journal of Arboriculture (Costello, et. al., 2005), indicates that 5-gallon oak trees planted and irrigated grew to 10.6 and 11.5 feet after four years. Personal experience over the last 18 years observing coast live oak trees on several project sites indicates that naturally establishing oaks that are located where higher soil moisture is available grow quicker and at least match the heights and canopy spreads in Table 11.

California Sycamore

Sycamore trees, an aggressive growing species, are projected to grow from 38 feet to 50 feet tall with 18 to 40 foot canopy spreads. The Manual of Woody Landscape plants (Dirr 2009) indicates a fast growth rate of 25 inches or more per year. The Urban Forest Ecosystem Institute indicates 36 inches or more growth per year for sycamores. The Sunset Western Garden Book (2001) and Tree of Life Nursery (2011 – see attached *Platanus racemosa* plant profile) indicate fast growth, quickly reaching heights of over 40 feet with equal spread. Personal observations over the last 18 years are consistent with Table 11. Sycamore trees that establish where soil moisture is adequate grow quickly upright and after about 10 years, the canopy width catches up with the height growth. The estimates in Table 11 are conservative and achievable, especially since the trees will be irrigated for a period of time.

Southern California Black Walnut

Black walnut trees, a shrub-like species, are projected to grow approximately the same pace as the oak trees, with heights ranging from 18 to 25 feet and canopy spreads from 22 to 33 feet wide. The Urban Forest Ecosystem Institute (2011) indicates a 24 inch per year growth rate for California walnut trees. Tree of Life Nursery (2011 – see attached *Juglans californica* profile) indicates "quick" growth to 20 feet. Horton (1949) indicates that California walnut trees are good plants for restoration areas and noted that following fire, sprout growth reached five feet in height after one year. Growth rates provided in Table 11 are conservative and consistent with personal observations over the last decade in southern California. On various project sites in Orange and Los Angeles Counties, thousands of walnuts were observed over several years and growth rates of at least 12 inches per year were common, even in non-irrigated soils. Irrigation will increase the growth rate and survivability of planted walnuts.

Validity of Growth Rate Projections

As depicted in the preceding sections, tree growth rates have been studied and monitored precisely as well as more generally summarized by classification into "slow", "moderate" or "fast" growth categories. All of the additional sources reviewed for preparation of this letter, along with my own personal observations in the field over the last 18 years, indicate that Table 11 is accurate and achievable. There are additional, numerous resources reviewed but not referenced herein that are consistent with Table 11 and this letter regarding oak, sycamore, and California walnut growth rates.

Please let me know if you have any questions or would like any additional information regarding Table 11.

Sincerely,

Michael Huff
Manager, Urban & Community Forestry

Att: *Quercus agrifolia Profile*
Platanus racemosa profile
Juglans californica profile

References

Costello, L., Jone, K, McReary D. 2005. Journal of Arboriculture 31(2): March 2005, Irrigation Effects on the Growth of Newly Planted Oaks (Quercus SPP). P 83-88.

Dirr, Michael. 2009. Manual of Woody Landscape Plants: Their Identification, Ornamental Characteristics, Culture, Propagation and Uses. 6th Edition. 1325 pp.

Horton, Jerome S. 1949. Trees and shrubs for erosion control of southern California mountains. Berkeley, CA: U.S. Department of Agriculture, Forest Service, California [Pacific Southwest] Forest and Range Experiment Station; California Department of Natural Resources, Division of Forestry. 72 p.

Urban Forest Ecosystem Institute. 2011. SelecTree tree database. Web site at http://selectree.calpoly.edu/

Sunset Western Garden Book. 2001. Kathleen Norris Brenzel, Editor. Sunset Publishing Corporation, Menlo Park, California. 768 pp.

Tree of Life Nursery. 2011. Quercus agrifolia, Platanus racemosa, and Juglans californica tree species profiles. Website at http://www.californianativeplants.com/

Quercus agrifolia, Coast Live Oak

The largest grower of California native plants in the state, Tree of Life Nursery has been located on the historic Rancho Mission Viejo in San Juan Capistrano for over 20 years. Largely a wholesale nursery, the ***Roundhouse Plant Store*** is open to the public Fridays year-round and Saturdays in fall and spring. For those interested in learning more, we offer a large selection of books on the California region regarding landscaping and horticulture, natural history, conservation, and more. The nursery's catalog, "Plants of El Camino Real," is a beautifully arranged collection of information about the plants we grow, with helpful hints for landscapers and gardeners looking for the right plant for the right place. Come experience Tree of Life for yourself!

Crown jewel of California's native flora, the Coast Live Oak is known for its nutritious acorns, spreading crown, beautiful architecture and dark green foliage. A large evergreen tree found in chaparral and woodlands below 3,000 feet throughout the coastal foothills of the state, it is an important component of the southern oak woodland and foothill woodland plant communities. In landscape situations, it grows 1 to 3 feet a year, and some reach maturity (40 by 40 feet) in as little as 15 to 20 years. Oaks provide valuable habitat for hundreds of species, especially for native birds. An unsurpassed specimen for use in parks, yards and for lining California's streets and highways, this noble beauty invokes the valuable heritage of our state. For more information, go to www.californiaoaks.org.

Tree of Life Nursery
San Juan Capistrano
California (949) 728-0685
California Native Plants

Companion Plants

Arctostaphylos uva-ursi
Ceanothus maritimus
Eschscholzia californica
Festuca californica
Heteromeles arbutifolia
Heuchera maxima
Iris douglasiana
Leymus species
Nassella species
Rhus integrifolia
Rhamnus californica
Ribes viburnifolium

Platanus racemosa, Western Sycamore

The largest grower of California native plants in the state, Tree of Life Nursery has been located on the historic Rancho Mission Viejo in San Juan Capistrano for over 20 years. Largely a wholesale nursery, the ***Roundhouse Plant Store*** is open to the public Fridays year-round and Saturdays in fall and spring. For those interested in learning more, we offer a large selection of books on the California region regarding landscaping and horticulture, natural history, conservation, and more. The nursery's catalog, "Plants of El Camino Real," is a beautifully arranged collection of information about the plants we grow, with helpful hints for landscapers and gardeners looking for the right plant for the right place. Come experience Tree of Life for yourself!

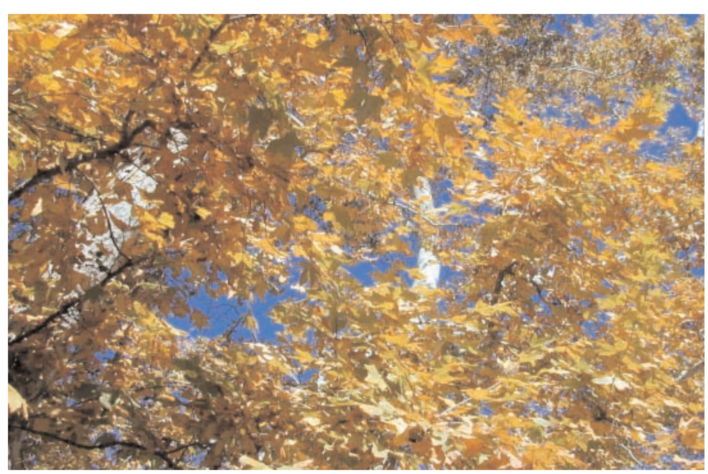
Western Sycamore is a large, bright green leaves, mottled, light-colored bark, arching branches and spreading form characterize this stately tree. Native to riparian areas in low elevations of the southern half of the state, the deciduous Western Sycamore is a beautiful addition to any natural landscape. Quickly reaching a height of over 40 feet with equal spread, this tree grows best with a continuous supply of moisture, and for this reason is acceptable for planting in lawns. A valuable source of wildlife habitat, Sycamores are striking trees, providing summer shade, fall color and visible branching pattern in winter. To create an authentic California garden, plant a Sycamore woodland understory (see list at left). All Sycamores are susceptible to anthracnose, a fungal leaf blight that causes early drop but is otherwise harmless.

Tree of Life Nursery
San Juan Capistrano
California (949) 728-0685
California Native Plants

Plants for a Sycamore Woodland

Aquilegia formosa, Red Columbine
Heteromeles arbutifolia, Toyon
Heuchera maxima, Giant Alum Root
Iris douglasiana, Douglas Iris
Leymus triticoides, Creeping Wildrye
Mahonia repens, Creeping Mahonia
Philadelphus lewisii, Mock Orange
Rhamnus californica, Calif. Coffeeberry
Ribes speciosum, Fuschia Flwg. Gooseberry
Rosa californica, Calif. Wild Rose
Salvia spathacea, Hummingbird Sage
Symphoricarpos mollis, Creeping Snowberry

 visit www.treeoflifenursery.com



TREE OF LIFE NURSERY
SAN JUAN CAPISTRANO
CALIFORNIA (949) 728-0685
CALIFORNIA NATIVE PLANTS

Juglans californica, So. Cal. Black Walnut

The largest grower of California native plants in the state, Tree of Life Nursery has been located on the historic Rancho Mission Viejo in San Juan Capistrano for over 20 years. Largely a wholesale nursery, the ***Roundhouse Plant Store*** is open to the public Fridays year-round and Saturdays in fall and spring. For those interested in learning more, we offer a large selection of books on the California region regarding landscaping and horticulture, natural history, conservation, and more. The nursery's catalog, "Plants of El Camino Real," is a beautifully arranged collection of information about the plants we grow, with helpful hints for landscapers and gardeners looking for the right plant for the right place. Come experience Tree of Life for yourself!

Native Trees for Fall Color

**Aesculus californica*, Calif. Buckeye
Betula fontinalis, Water Birch
Cercis occidentalis, Western Redbud
Platanus racemosa, Western Sycamore
Populus fremontii, Fremont Cottonwood
Quercus kelloggii, Black Oak
Salix species, Willow
*showy white bark

Southern California Black Walnut is a medium, deciduous tree native of north-facing coastal and inland foothill slopes. A member of the southern oak woodland community, Black Walnut grows quickly to 20 feet tall and as wide, with a shrub-like habit. In full sun, plants are full and rounded; in partial shade, growth is more upright and slender. Large, bipinnate leaves are especially attractive in fall, when they turn yellow and provide a colorful reminder of the changing seasons. A large scale, drought tolerant slope cover, it thrives in poor soils and provides valuable wildlife habitat The native range of this species is shrinking, the scattered populations threatened by the development of southern California's remaining hillsides.

Appendix FEIR-11

Universal Studios Fire—Fire Flow Assessment Report

UNIVERSAL STUDIOS FIRE

Fire Flow Assessment Report

June 13, 2008

Los Angeles County Fire Department

Fire Chief P. Michael Freeman

Universal Fire Flow Assessment Report

Table of Contents

PREFACE

This report is a collective effort by individuals assigned to the Universal Fire Flow Assessment Team (FFAT). The FFAT was made up of individuals from both Los Angeles County Fire Department and the Los Angeles County Department of Public Works. The information collected was based upon interviews and electronic data made available to the FFAT. An after action review with all participating response personnel has yet to be completed and will focus upon operational issues. The focus of this report is on fire flow delivery at the time of the incident in an attempt to identify issues for future consideration.

I would like to recognize the hard work of the Fire Flow Assessment Team, staff personnel and other Fire Department personnel for their efforts in compiling this report. In addition, I would like to acknowledge NBC Universal, Los Angeles City Fire Department, Burbank Fire Department, and Los Angeles Department of Water and Power personnel for their assistance and information provided.

P. Michael Freeman
Fire Chief
Los Angeles County Fire Department

I. Executive Summary

The intent of the Universal Fire Flow Assessment Report is to examine fire flow conditions and issues associated with the Universal Fire that occurred on June 1, 2008.

The water system on the lower lot (fire area) had a fire flow of over 8,650 Gallons Per Minute (GPM) at 20 Pounds Per Square Inch (PSI) tested from two hydrants, and a calculated flow of over 12,000 GPM with four hydrants operating. The water supply available in the private water system on the lower lot exceeded the required fire flow for the King Kong and Video Storage Buildings. The required fire flow for the King Kong Building was 3,500 GPM and the Video Storage Building was 2,500 GPM totaling 6,000 GPM.

Facades 4, 5, 7, and 10 required 7,210 GPM fire flow, which is under the 8,650 GPM available in the system. After the 1990 lower lot fire, the water system was enhanced with water main upgrades and draft hydrants from four on-site lakes. The lakes provide over 6.6 million gallons of water for firefighting through draft hydrants. The 12,000 GPM in the lower lot can be supplemented by an additional 3,000 GPM by using the Gate 2 manifold, 7,500 GPM by drafting from the lakes, 3,000 GPM by relay pumping from Barham Boulevard and 3,000 GPM from automatic supplementation when the upper lot pressure valves open. This totals 28,500 GPM, which is over 4.5 times the required fire flow for the two buildings that burned. The upper and lower lots are also surrounded by two public water grids (Service Zones 830 and 1116) owned and maintained by the Department of Water and Power, which can provide more water to support Universal's private water system when required.

The fire started in a cluster of facades which are non-regulated temporary structures constructed of exposed wood and flammable exteriors. A facade was accidentally ignited by roofers and the fire quickly spread through other unprotected facades, creating a conflagration. Radiant heat from the tremendous volume of fire restricted the placement of fire engines (see Figure 1) and hose line deployment, contributing to what seemed to be inadequate water. Extreme demand required by the burning facades on the water system drew down available water supply until the system was supplemented. During this transitional period, some of the high volume hose nozzles experienced reduced water volume. The facade conflagration burned with such intensity and speed that arriving fire units had difficulty providing tactical fire attack and several fire apparatus were damaged by the radiant heat. The King Kong building was exposed to burning facades on three sides, which contributed to the loss of the building. Facade 14 fell burning into the northwest corner of the Video Vault, causing radiant heat to ignite the flammable contents through the metal wall (see Figure 2). First responders stated that hose streams vaporized before hitting the fireball and concentrated on protecting exposures successfully saving several facades and nearby buildings. After the 1990 fire, the facades were deemed a special hazard, and engineers from Universal worked with the Fire Department to develop a deluge fire protection system designed to prevent the rapid spread of fire. These systems were exterior devices that proved to be ineffective. They actually contributed to water loss as when the facades fell; the risers snapped and water flowed freely.

Rather than water availability, the extent, arrangement, construction materials, lack of separation, and internal fire protection systems in the facades contributed to rapid fire growth, extreme fire conditions and spread.

After evaluating the fire, water supply and location of the buildings in proximity to the facades, additional fire protective measures are required to prevent a similar event in the future. An Interdepartmental Assessment Team (IAT) will be formed, consisting of representatives from the Department of Public Works (Building and Safety Division), Fire Department, and NBC Universal. The team will develop a Memorandum of Understanding (MOU) to set forth fire protection and building regulations for rebuilding the damaged back lot, specifically the facades. This will be a living document that periodically will be evaluated to address fire and life safety concerns for the studio. The conditions for rebuilding will exceed existing fire and building codes.

II. Conclusions:

- The amount of water required to extinguish or control burning Facade 7 and protect exposures exceeded the water delivery capability of Engine and Patrol 51 on arrival, although water was available within the system.

- New York Avenue, which is 60 foot wide, was ineffective in halting the spread of fire from Facades 7, 7A, 4 and 5 to Facade 10.

- The amount of water required to extinguish or control burning Facades 7, 4, 5, 15, and 10 and protect exposures exceeded the water delivery capability of first-alarm resources,.

- Facade fire spread speed and intensity was difficult to control because of open design construction. The fire behavior more closely resembled that of a construction framing stage fire as compared to a building fire.

- Facade fire spread speed and intensity created a fire conflagration. This conflagration outpaced the ability to place effective master streams into position. Resources were forced to redeploy or be overrun by fire.

- Fire flow availability was an issue from approximately 0540 hours, as reported by E19 until 0600 hours when the Barham Boulevard supply lay, the drafting operation at Park Lake, and the lower lot FDC manifold were utilized.

- Failure of the deluge system and broken risers created undesired water system demand.

- Previous history indicates that an established fire in a movie studio facade is difficult to stop.
  - 1990 Universal Studios Fire - Fire destroyed virtually the same facades as the 2008 fire. King Kong and Video Vault buildings are spared.
  - 1983 Paramount Studios Fire - Entire New York back lot destroyed.
  - 1970 Warner Brothers (Columbia Ranch Fire) - 22 structures destroyed.
  - 1957 Universal Studios Fire - New York Street film set destroyed by arson.
- The 1997 fire in the facades north of Courthouse Square was an exception in that early detection, time of day, and reduced exposures due to open Courthouse Square were factors in suppression.
- Interior suppression access to the King Kong building was restricted due to entrances being blocked by burning facades.
- Fire sprinklers were ineffective in King Kong building possibly due to multiple ignition points, and inability to connect to FDC due to burning façade.
- Fire sprinklers were ineffective in Video Vault building possibly due to multiple ignition points, FDC not being utilized, high hazard commodity, and storage array.

III. <u>Universal Lower Lot Water System</u>

A. History

Universal Studios has been in operation as a movie production facility for 96 years. It was first established in 1912 and officially opened in 1915. It has been in operation ever since. Previous fire activity in the New York Street back lot area includes:

1997 Fire destroys Facade 17 north of the Courthouse.

1990 Arson fire destroyed virtually the same facades as the 2008 fire. King Kong and Video Vault buildings are spared.

1957 Arson fire destroys the New York Street film set.

The 1990 fire destroyed the New York Street facades yet spared the King Kong Building. Over the preceding years, the water system has undergone a number of improvements and today has what appears to be an adequate private system that is fed by the City of Los Angeles' Department of Water and Power (DWP). The entire lower lot system consists of the following components:

- **Mains:** 12-inch and 10-inch water mains that stretch from Lankershim Boulevard on the west boundary of the property to the far end of the lower lot near Barham Boulevard on the east end. The 12-inch main was installed as part of an overall upgrading of the system between 1997 and 2002. These water mains can be supplemented by a Fire Department Connection (FDC) manifold located just outside of Gate 2 near Lankershim Boulevard. The FDC is comprised of four 2 ½-inch female connections. This FDC can be supplied from the public fire hydrant located at Lankershim Boulevard at the entrance to Gate 2.

- **Lakes**: Four lakes on the property have also been designed to provide additional firefighting water. Falls Lake and New Falls Lake with a 2.7 million gallon capacity (at the highest elevation), Jaws Lake with a 950,000 gallon capacity (at middle elevation), and Park Lake with a 3 million gallon capacity (lowest elevation). Falls Lake and Park Lake are interconnected with piping and manual valves that allow replenishment (by gravity) of the lower lake from the upper one. All together, the four lakes provide a total potential of 6,650,000 gallons of added fire protection water. After the 1990 fire, the Los Angeles County Fire Department (LACOFD) recommended that Universal install drafting hydrants to make it easier for fire engines to draft additional water from the lake system. Universal complied with the request and today there are drafting hydrants located at both Jaws Lake and Park Lake (one each) allowing Fire Department access to the total water supply in all three lakes.

- **Pressure valves**: There are two pressure reducing valves that connect the water system on the lower lot to the water system on the upper lot. These valves sense pressure reduction. When the lower lot system experiences a pressure drop below 85 PSI the valves automatically open delivering up to 1,500 GPM per valve.

B. Rated capacity – fire flow and pressure

PRIVATE ON-SITE FIRE HYDRANTS* (tested by LACOFD engineering personnel on June 7, 2008)

<u>Fire Hydrant #69</u> Back lot area (James Stewart Avenue)

Observed flow = 1665 gallons per minute (GPM) @ 96 pounds per square inch (PSI) residual; Calculated fire flow = 3483 GPM @ 20 PSI

<u>Fire Hydrant #52</u> Back lot area (New England Street)

Observed flow = 2545 GPM @ 96 PSI residual; Calculated fire flow = 5170 GPM @ 20 PSI

This calculates to a fire flow with 2 hydrants flowing of 8653 GPM at 20 PSI, which is optimal and has a margin of 20 PSI, with 4 hydrants flowing at 5 PSI available fire flow increases to over 12,000 GPM. It should be noted that drawing pressures less than 5 PSI may cause system damage and is not recommended.

LOS ANGELES – DWP PUBLIC FIRE HYDRANT*

Fire hydrant located at the northwest corner of Lankershim Boulevard and Valley Heart Drive and can supply the manifold at Gate 2.

Observed flow = 3462 GPM @ 94 PSI residual; Calculated fire flow = 7822 GPM @ 20 PSI

***NOTE:** All fire flow tests were conducted using the 4-inch outlet.

C. Los Angeles Department of Water and Power's (DWP) actions during fire and any increase in flow/pressure

From a phone conversation with a DWP representative three days after the fire, the following information was obtained:

A DWP representative was requested to respond at 0522 hours on June 1, 2008. Upon arrival, he physically checked two DWP public hydrants on the perimeter of the Universal Studios' lower lot. While apparatus were flowing water, all readings were within normal limits. At 0541 hours, the DWP representative was advised of low water pressure on the lower lot and he was asked by his dispatch to boost pressure. He then went to the Hollywood pump station that feeds DWP Service Zones 830 and

1116. Service Zone 830 feeds Universal Studios' lower lot. Two pumps were running upon his arrival. He attempted to engage a third pump, but the system would not allow it to turn on or come online because of the adequacy of the volume of water flowing. He cannot explain the LACOFD dispatch call history that stated that at 0545 hours, the pressure was boosted. An official report from DWP is pending.

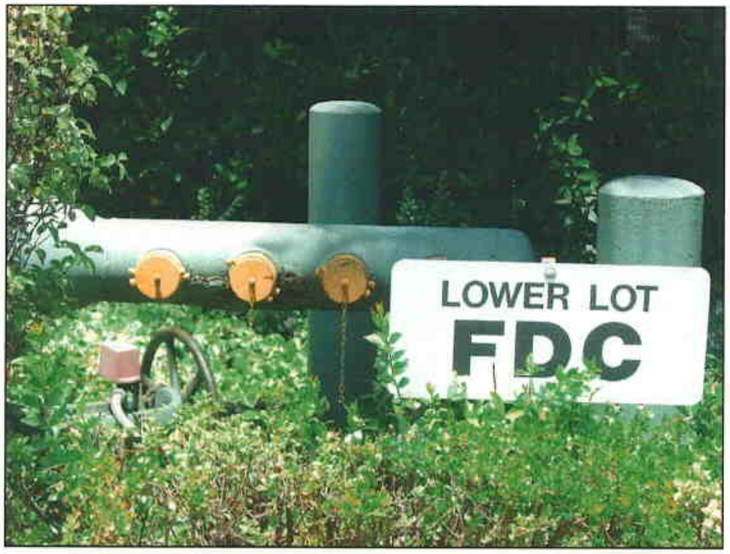
D. Number and location of FDC manifold(s) for Fire Department augmentation of flow and pressure

There are two Fire Department Connections (FDC) manifolds provided to augment the firefighting water supplies. One 4-way FDC with 2 ½-inch female inlet connections supplies the lower lot and is located at Lankershim Boulevard at the entrance to Gate 2. The other FDC is a 4-way connection with 2 ½-inch female inlet connections that supplies the upper lot and is located on the south side of the Saddle Ranch Chop House Restaurant near the parking lot.

The FDC serving the lower lot can be pumped from a public fire hydrant from the DWP 830 system located on either the east or west side of Lankershim Boulevard and Valley Hart Drive. This will provide an additional 2,000 GPM to the lower lot only.

The FDC supplying the upper lot can be pumped from a public fire hydrant from the DWP 1116 system located north or south of the FDC on Universal Hollywood Drive. This will provide an additional 2,000 GPM to the upper lot system.

There are two interconnections between the upper and lower lot systems. They are designed to augment the lower lot system when the pressure drops to below 85 PSI in the lower lot. Each interconnection can supply an additional 1,500 GPM (3,000 GPM total) to the lower lot system, but only when the lower lot system is being taxed and the pressure is reduced below 85 PSI residual.



Lower Lot Fire Department connection at Gate 2

When was the manifold pumped by Fire Department during fire?

Battalion Chief 5 was assigned to assist with the water supply group due to his familiarity with the Universal water system. He drove to Gate 2 and the lower lot FDC and observed that no one was assigned to this critical function. He immediately contacted the I.C. and asked for two engines for this pumping operation. He assigned West Covina Engine 2 to lay a 4" supply line from the hydrant on the northwest corner of Valley Heart Drive & Lankershim Boulevard across the street to the lower lot FDC manifold to pump two of the four 2 ½-inch outlets. The engine was in place and pumping at 0700 hours. Shortly after WCV Engine 2 was pumping water, he received another engine to add additional water to the manifold. LACOFD Engine 1 connected to a hydrant on the east side of Lankershim and pumped the remaining 2 outlets on the manifold in order to maximize the augmentation. A DWP water representative advised that the hydrant Engine 1 was using had 100 PSI. This action provided two engines at the lower lot FDC and two separate hydrants supplying them and all four of the 2 ½ outlets being supplied. Both engines were pumping at least 150 PSI to the manifold pumping with approximately 2,000 to 3,000 GPM of water.

E. Estimated additional fire flow from off site or other on-premises fire hydrants

There were two 4-inch supply lines relay pumped from Barham Boulevard. This operation was implemented by Los Angeles City Fire Department (LAFD) around 0630 hours. Each line supplied 1,500 GPM providing a potential of **3,000 GPM**.

There were a total of 5 LAFD engines drafting out of Park Lake. At capacity, these engines could supply an additional **7,500 GPM**.

The combined total of these two operations added a potential **10,500 GPM** of additional fire flow.

Hose lines, locations and numbers.

At 0600 hours, it is estimated that the following appliances were in operation:

- Fire ladder pipes @ 1,000 GPM each
- Three to 4 ground monitors @ 500 to 1,000 GPM each
- Fifteen to 20 2 ½ -inch hand lines at 250 GPM each.

These appliances would have a range of 10,250 GPM on the low side to 14,000 GPM on the high side.

When were hose lines supplied during fire?

The specific locations and times of supply can be better addressed in the after action report after all involved parties have been interviewed.

F. Assessment of deluge system and impact:

Although the 17 deluge systems were designed to be utilized as a protective measure in the event of a fire in the facades, the reality (in this case) is that they did not prove to be effective. The deluge systems were proposed and accepted by the Department after the 1990 fire as a means of providing some type of protection for the facades. The deluge systems require a manual means of activation. This manual means can occur either at the deluge valve or remotely from a panel via an electronic solenoid valve. At the time of discovery, this fire had already taken hold of the roof area on the building of origin. By the time there was a person in place to manually initiate the deluge systems, a conscious decision was made not use them. The basis for this decision was the fact that all fire flow was needed for Fire Department use and the belief that the fire had already grown to the point where the individual deluge systems would be ineffective. The deluge system and the hydrant system are both fed by the same water main.

The impact of the deluge systems in the facades actually was a negative one. Once the fire spread from facade to facade, each facade started to fail in turn. As they failed or collapsed, they fractured the risers that fed some of the deluge systems causing water to flow indiscriminately from the damaged risers. This caused even more strain to be placed on the already stressed water system. Additionally, the shut offs for these risers could not be immediately accessed because they were located within the fire area.

During this incident, there were five risers (two 4-inch and three 6-inch) that fractured or failed, causing an undetermined loss of water volume and pressure. Four of these risers were able to be shut down at approximately 0630 hours.

G. Identify where automatic sprinkler systems were present in buildings and assess their effectiveness

Within the fire area, there were three structures with automatic sprinkler systems; the storage building (6180) behind Facade 8, the King Kong building (6194) and the Video Vault (6197).

Since both the King Kong and the Video Vault buildings were destroyed in the fire, it is safe to assume that the systems on their own were ineffective. One of the contributing factors in the ineffectiveness of the two systems, was that neither one of them was connected at the FDC by Fire Department units. The Fire Department connection for the King Kong building was located on the east side of the structure and obscured by rubble from the destruction of the adjacent facade. The FDC for the Video Vault was located at the northeast corner of the building and was unobstructed. This FDC was not connected during the fire. The reasons for this are yet unknown and will become evident during the after action report investigation.

Storage building 6180 was not destroyed. The sprinkler riser for this building was connected to the same riser that fed the Facade 8 deluge system, which was destroyed in the fire. Most likely water pressure was not sufficient to supply the system. Fire personnel deployed hand lines to protect the contents.

H. Any other related information gathered

The visual appearance of an inadequate hose stream in itself may not be evidence of an inadequate water system. Any engine that has water in its tank is capable of supplying adequate pressure to produce an effective stream. There is no evidence at this point that engines ran dry. That being the case, the more likely scenario would be that of a particular engine trying to supply too many appliances and effectively overtaxing their pump.

IV. Universal Hilltop Water System

A. Description of design, fire flow, pressure and connectivity

The water system for Universal Studios is divided into two separated grids servicing Hilltop Operations (upper lot) and the lower lot.

The upper lot is supplied from the 145 PSI DWP Service Zone 1116 at two locations with a 16-inch public water main. The first connection is just north of the Saddle Ranch Chop House Restaurant in the parking area. The second location is on the south side of the Saddle Ranch Chop House Restaurant near the parking lot. The south side connection has an FDC consisting of four 2 ½- inch female connections and is tied into the upper lot private system.

The lower lot is supplied from the 115 PSI system 830 DWP public water main at two locations. The first connection is off a 19-inch public water main at the south east corner of the Jules Stein Building (1360). The second connection is from an 8-inch public water main off Lankershim Boulevard at the north side of the entrance into Gate 2. This connection has an FDC consisting of four 2 ½ -inch female connections and is tied into the lower lot's private system.

The upper lot and lower lot's private water supplies are interconnected in two locations to automatically augment the lower lot system from the upper lot system. One connection is located in a vault next to Fire Station 51. The other connection is located off Cyclone Drive at the "W" parking lot. Each connection is provided with a 6-inch and also a 4-inch pressure reducing valve. The pressure reducing valves are set to 85 PSI. When the lower lot system drops below 85 PSI, the valves automatically open providing additional flow until the lower lot water pressure is back up to 85 PSI. The pressure reducing valves are required to reduce the incoming pressure down from 180 PSI, which is the upper lot system pressure at the Cyclone Drive / "W" parking lot connection (see Appendix C).

Connection point between upper and lower lot systems at Cyclone Drive

V. <u>The Fire</u>

A. Extent of fire involvement <u>on arrival</u> of first alarm

Upon arrival of the entire first alarm at approximately 0500 hours (see Figure 1), the fire was well established in Facades 7, 7A, 5, 4, and spreading to Facades 15 and 10. This is based on the Alarm Occurrence Report (see Attachment B) and eyewitness accounts.

B. Fire flow required for extent of fire involvement on arrival as compared to availability

From Figure 2, the amount of water needed at 0500 hours was 7,210 GPM. With a three minute position and setup time for each unit, the best case scenario for water delivery at 0500 hours is 3,000-4,000 GPM. Fire flow availability from the area around Fire Hydrant 52 was 5,170 GPM. Once the lower lot system pressure dropped below 20 PSI, the two interconnection points would open from the upper lot system, and an additional 3,000 GPM would be available. This would meet the fire flow needed.

Five minutes later, at 0505 hours, the fire flow necessary is 10,280 GPM. With the entire first alarm on scene, positioned and setup with master streams, the best case scenario for water delivery is 6,000-7,000 GPM. Fire flow availability at this time was 8,170 GPM (5,170 GPM plus the 3,000 GPM from the interconnection points). However, the broken deluge risers drained valuable water supply. This may have challenged required fire flow. The FDC manifold at Lankershim Boulevard and Gate 2, and if possible, the FDC manifold at the south side the Saddle Ranch Chop House Restaurant in the parking area should be hooked up from the public fire hydrants and pumped at 2,000 GPM each. These would provide a potential additional flow of 2,000 GPM each.

Without the supplemental water from the lower lot FDC or upper lot FDC, and based on the hydrant flow data in Section IB, the estimated fire flow available for the lower lot was approximately **8,500 GPM** at 20 PSI. This was compromised as the facade deluge systems were destroyed. With the lower lot FDC manifold being supplied from the Valley Heart Drive hydrant, and the upper lot FDC manifold being supplied from a public hydrant off Universal Hollywood Drive required fire flow will be reestablished.

It should be noted that the existing lower and upper systems design and pipe sizing may make it difficult to obtain high flows, especially in a concentrated area of the site.

C. Estimated fire flow required at height of fire versus what was available

The fire in the facades spread so quickly that the issue is one of delivery, not availability. As shown in Figure 4, fire progression speed and intensity in the facades outpaced the ability to place effective master streams into position in the initial 30 minutes. In addition, fire speed and intensity forced resources to redeploy or be overrun by fire. By 0545 hours, the fire had spread such that resources had been forced to the perimeters of the facade areas and point protection of non-facade buildings and some of the outer facades was taking place. These points of protection include:

Storage building behind Facade 8
King Kong Building
Facade 1 in front of 747 building
Facade 16 and Courthouse Square
Video Vault Building

Between 0515 - 0545 hours, it is estimated that the greatest fire flow was required. This fire flow is based on the large perimeter suppression action caused by the rapid spread of the facade fire, and is estimated to be 14,000 GPM. Full utilization of the supplemental water supply did not occur until 0600 hours. At 0545 hours, the indications were that the fire had just entered the King Kong and Video Vault Buildings. By this time, the third alarm resources had been setup and were flowing water with both effective and some ineffective streams due to the lack of supplemental water. With the deluge supply system compromised and the back lot FDC manifold not being supported, the water system was overtaxed.

D. Other related information

Speed of fire spread and required fire flow control requirements

As the cluster of Facades 7, 7A, 4 and 5, became fully involved, a fire conflagration developed. This conflagration occurred during the arrival of first alarm fire units. It quickly outgrew the ability of resources to operationally apply the fire flow needed to slow or stop the fire, despite the availability of water in the initial stages. The amount of heat radiating from the cluster of burning facades restricted the approach and placement of apparatus. Hose streams were forced back from the burning facades due to intense heat. Fire stream integrity was compromised and the heat virtually vaporized water preventing suppression. The facades burned freely consuming the fuels. When enough of the fuels were consumed the heat dissipated providing for the opportunity to apply water. The conflagration in the facades prevented fire attack.

Unlike building standards requirements for "real" buildings, facade buildings are constructed absent building-specific, Building Code requirements. Behind the building frontage, is facade building design which is vulnerable to fire because of open-wall and exposed conditions. Further, lack of applied fire resistive materials, absent compartmentation design, and the presence of heavier concentrations of combustibles will contribute to a rapid spread of fire in the facade structure when a fire occurs.

Fire in the facades showing intensity

Approximate apparatus placement of the 1st Alarm Units

(Figure 1)

The cluster of Facades 4,5,7,7a were fully involved with fire 6 minutes after the time of alarm providing the opportunity for limited water application before the apparatus had to be relocated or lost.

Façade 14 falling onto the Video Storage Building

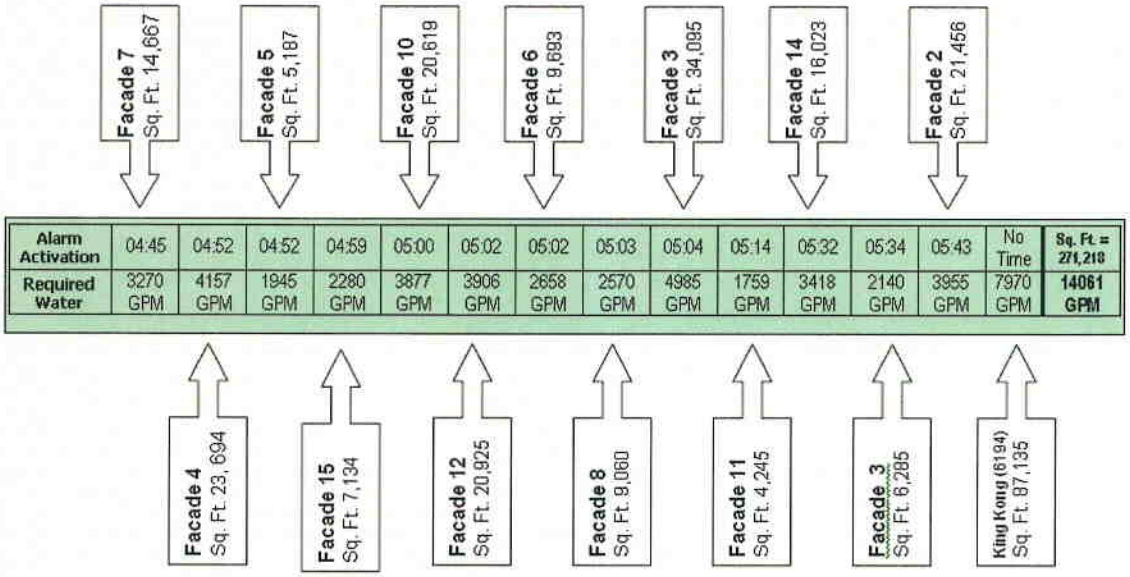
(Figure 2)

East End of Facade 14.pct

Facade 14 Crumbling.pct

Facade 14 down.pct

Initial Alarm Activation Timeline



Applied formula from NFPA Fire Protection Handbook, "Water Supply Requirements for Fire Protection" *Fire Suppression Rating Guide, ISO:* $F = 18\,C\,(A)^{0.5}$

Figure 4: Fire flow requirements during the first thirty minutes:

Note: Fire flows are calculated based on individual building fires without multiple exposures.

Time		4:49 a.m.	5:00 a.m.	5:05 a.m.	5:15 a.m.
Required Fire Flow		**3270 GPM**	**7210 GPM**	**10280 GPM**	**10430 GPM**
Total Sq. Ft.		**14, 670**	**71, 300**	**145,075**	**149,320**
Comments:	Sq. Ft.	0449 hrs – P51 on scene, called 2nd Alarm. 0451 hrs - Eng 51 monitor in service	1st Alarm on scene. 0502 hrs - LFD 60 and BRK E14(2nd alarm) on scene	LFD 27 (2nd Alarm) on-scene. 0505 hrs - LAC Eng 19 (2nd Alarm) on scene	
Façade 11	4,245				4,245
Facade 3	34,095			34,095	34,095
Facade 8	9,060			9,060	9,060
Facade 6	9,693			9,693	9,693
Façade 12	20,925			20,925	20,925
Façade 10	20,619		20,619	20,619	20,619
Façade 15	7,134		7,134	7,134	7,134
Facade 5	5,187		5,187	5,187	5,187
Facade 4	23,694		23,694	23,694	23,694
Facade 7, 7A	14,667	14,667	14,667	14,667	14,667
Time after arrival of initial FD units		**0 minutes**	**11 minutes**	**16 minutes**	**26 minutes**

VI. Rebuilding Requirements

Facades: Motion picture facades have historically been unregulated structures. The California Building Code as well as the Los Angeles County Building Code specifically exempt motion picture sets from requiring a building permit. This has resulted in the construction of facades utilizing any desired materials of construction, without requirements for separation, fire resistance or fire protection systems. The following pictures demonstrate typical construction features of the facades.

Exterior view of facade

Interior view of facade

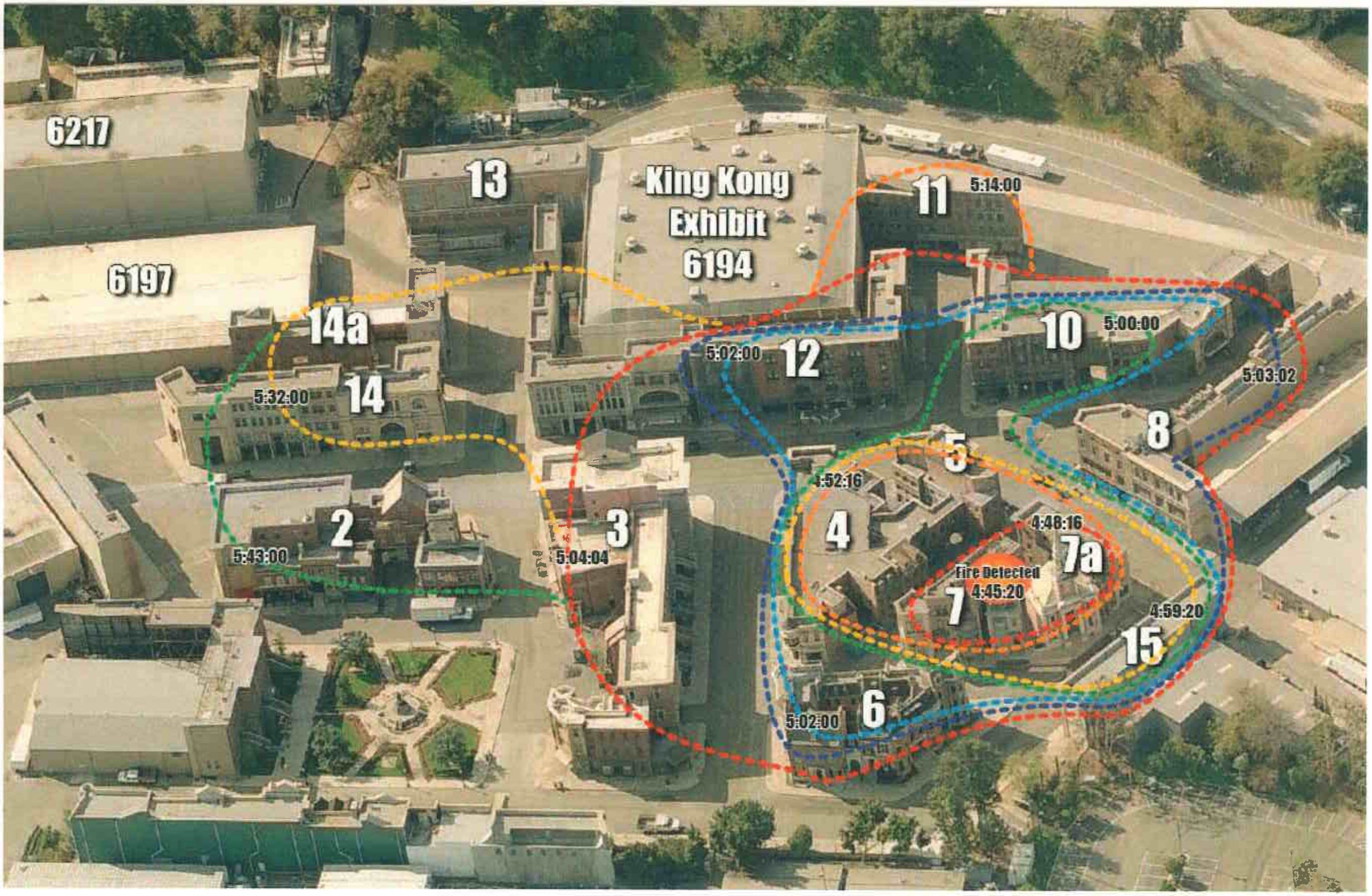
Stair leading to second floor of facade

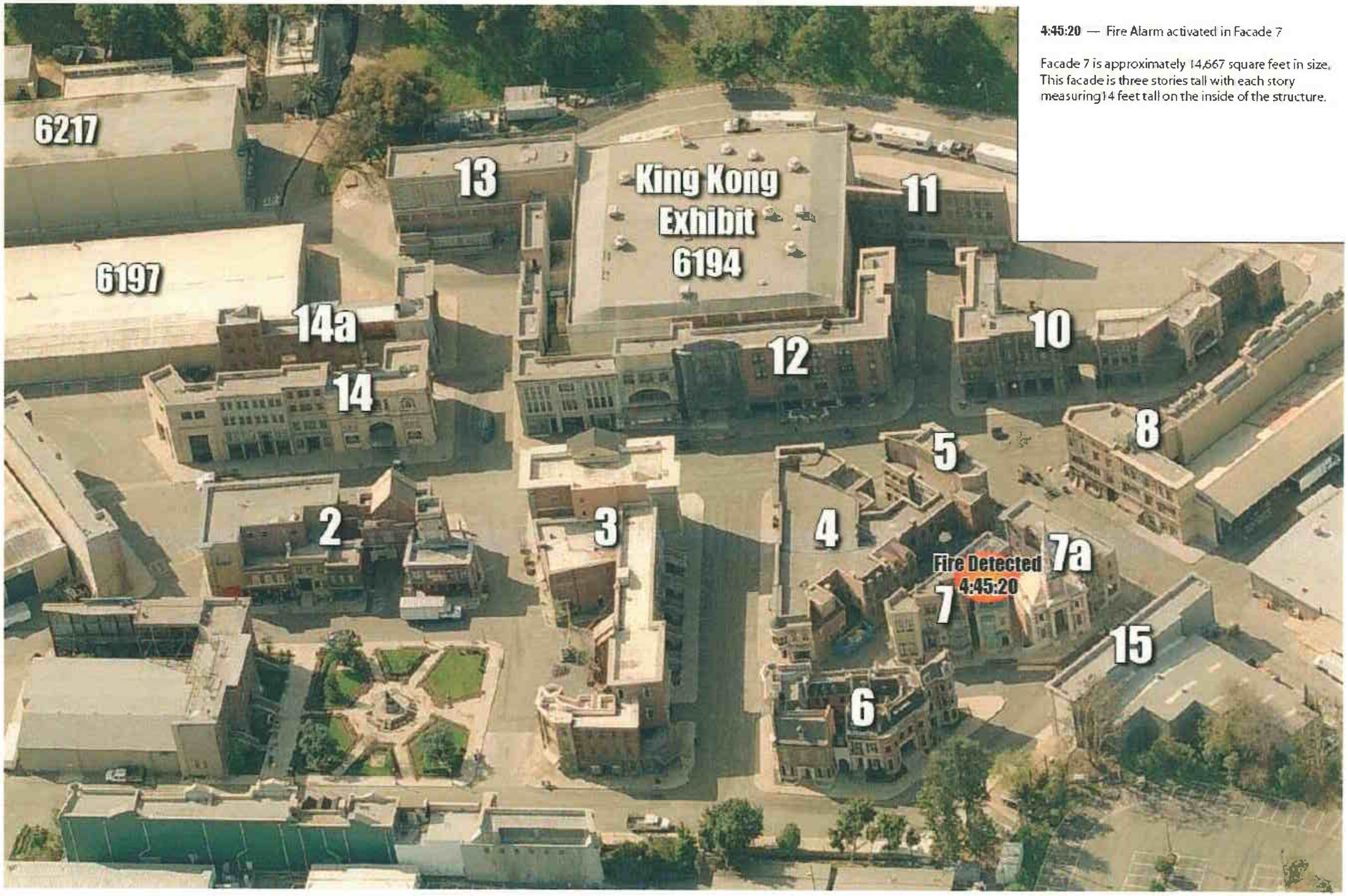
Rear view of exterior facade

Actions: Work in partnership with the Department of Public Works (Building and Safety Division) and NBC Universal to create an Interdepartmental Assessment Team (IAT). They will develop a Memorandum of Understanding (MOU) to set forth fire protection and building guidelines for the construction and alteration of facades and other similar outdoor structures, dedicated to the purpose of motion picture, television and commercial production. The MOU will include provisions for an annual (or agreed upon time frame) review and dialogue, continuously refining best management practices around fire protection systems, building materials, construction techniques and structure proximity.

Establishment of the MOU will result in a higher level of building safety and fire protection than the current State of California and County of Los Angeles Building and Fire Codes require. This will provide the greatest opportunity for the County of Los Angeles and NBC Universal to take immediate advantage of shared expertise as well as new and emerging technology.

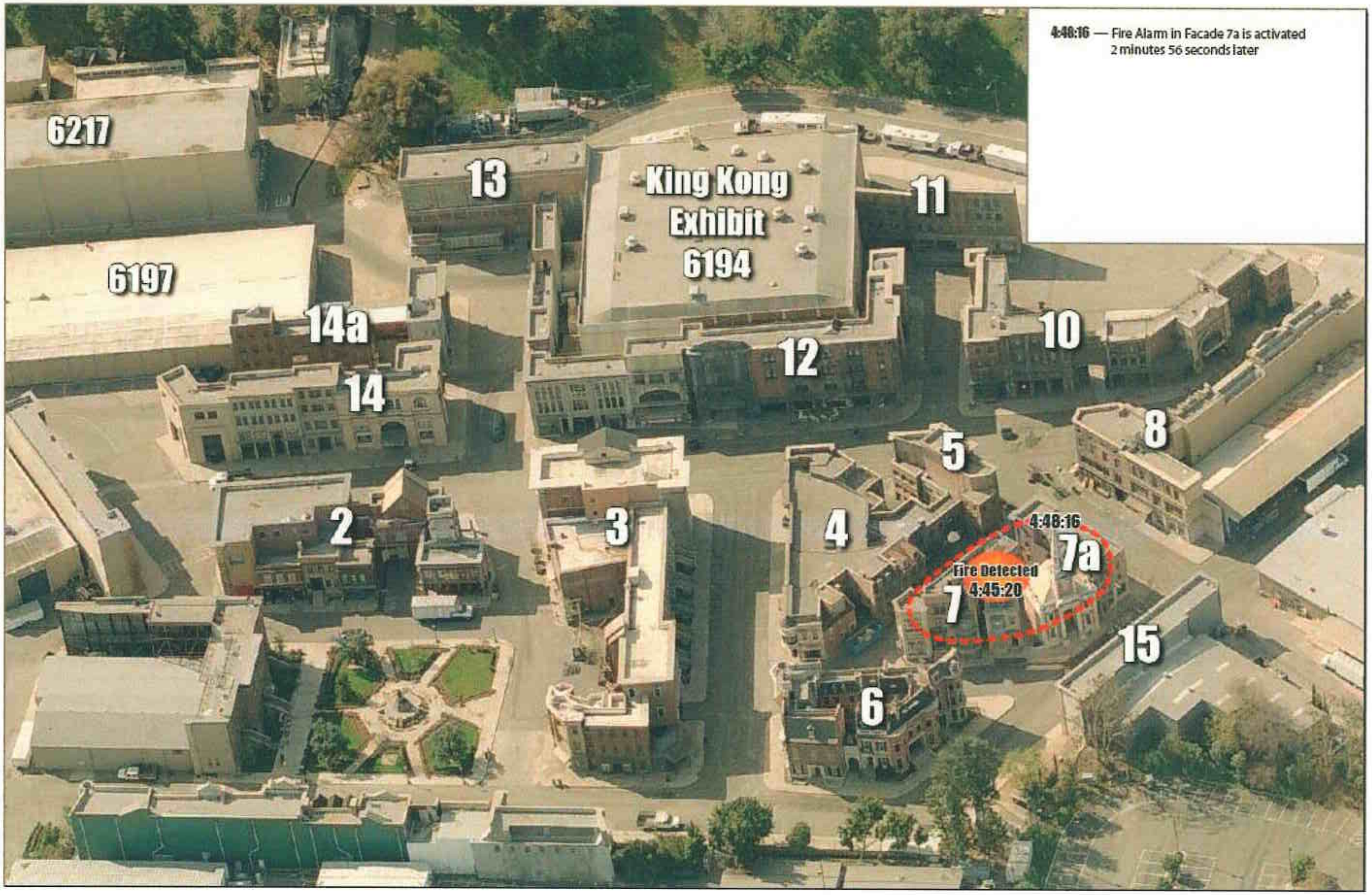
Attachment A: Fire Progression in the Facades

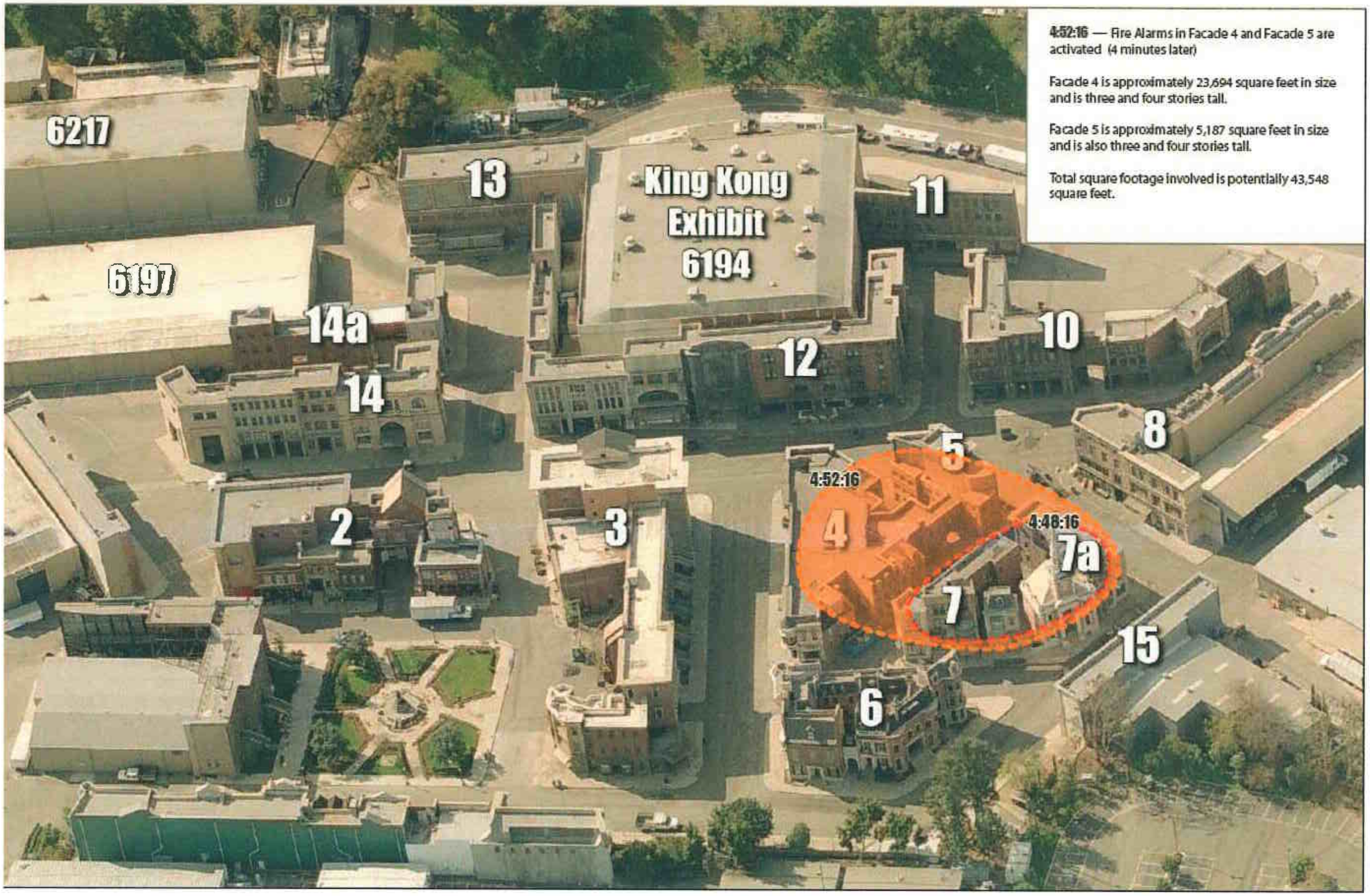


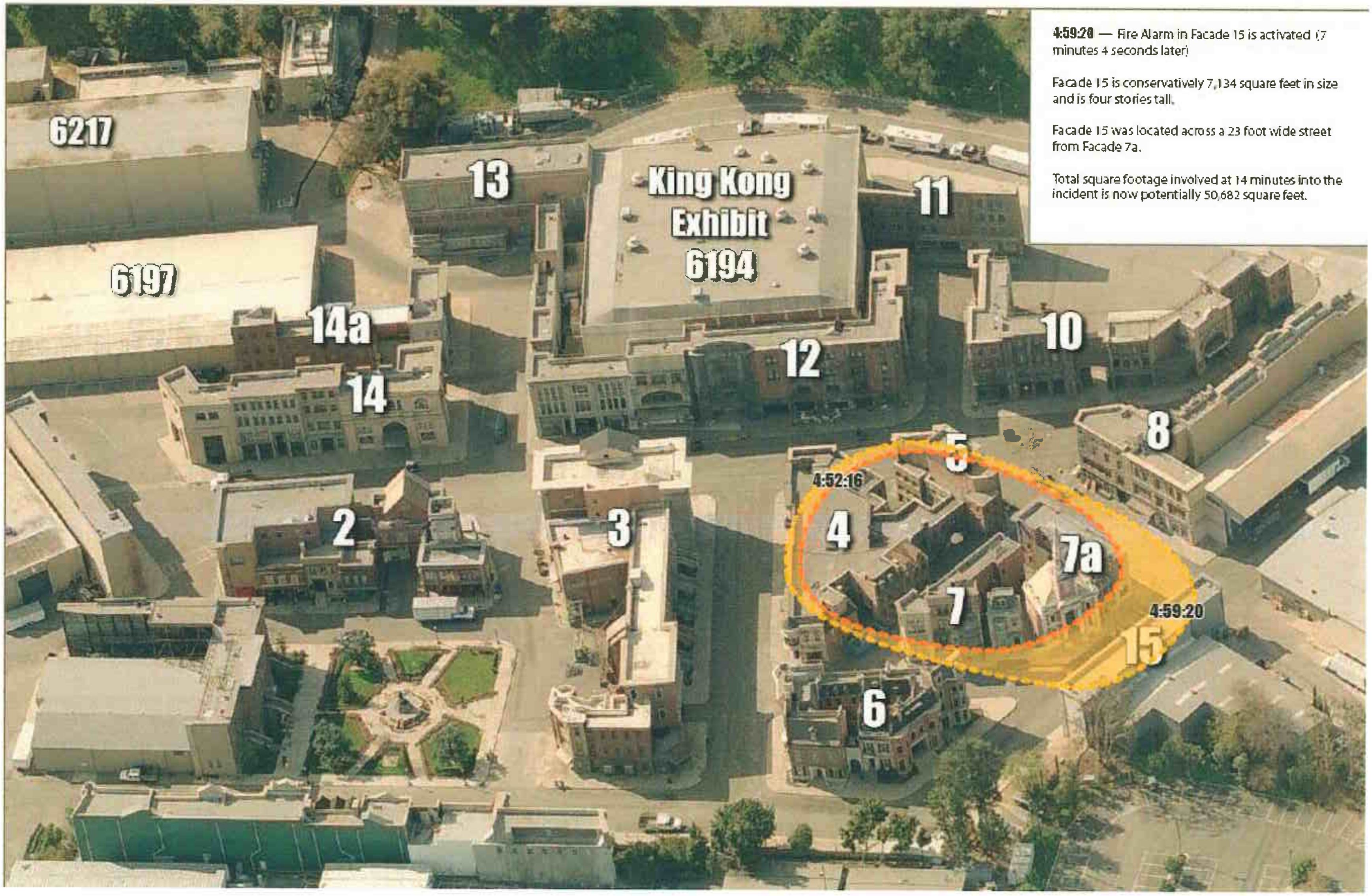


4:45:20 — Fire Alarm activated in Facade 7

Facade 7 is approximately 14,667 square feet in size. This facade is three stories tall with each story measuring14 feet tall on the inside of the structure.


4:48:16 — Fire Alarm in Facade 7a is activated 2 minutes 56 seconds later
6217
13
King Kong Exhibit 6194
11
6197
14a
12
10
14
8
5
2
3
4
4:48:16
7a
Fire Detected 4:45:20
7
15
6


4:52:16 — Fire Alarms in Facade 4 and Facade 5 are activated (4 minutes later)
Facade 4 is approximately 23,694 square feet in size and is three and four stories tall.
Facade 5 is approximately 5,187 square feet in size and is also three and four stories tall.
Total square footage involved is potentially 43,548 square feet.
6217
6197
13
King Kong Exhibit 6194
11
14a
12
10
14
8
5
4:52:16
4
4:48:16
7a
2
3
7
15
6

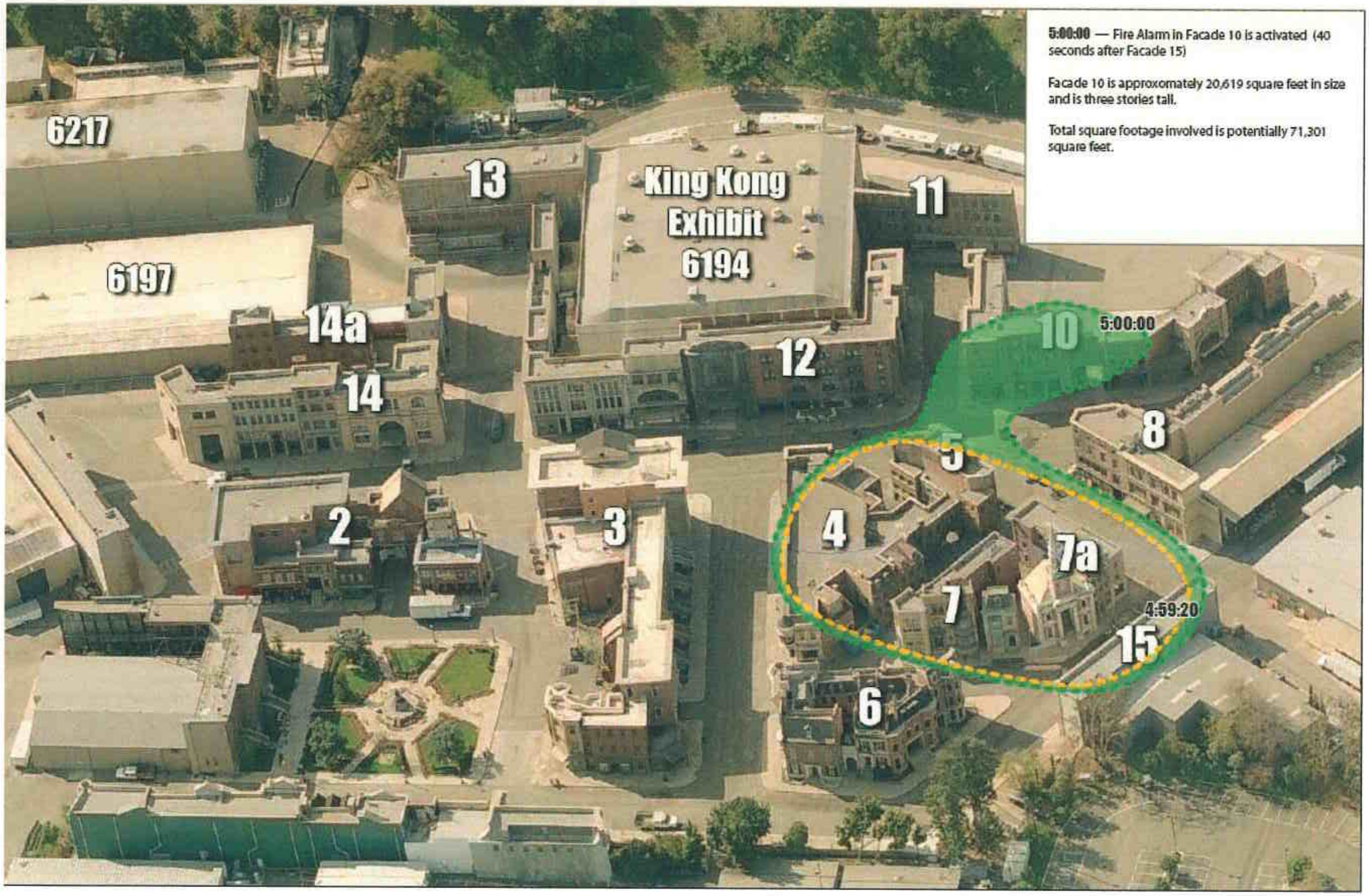


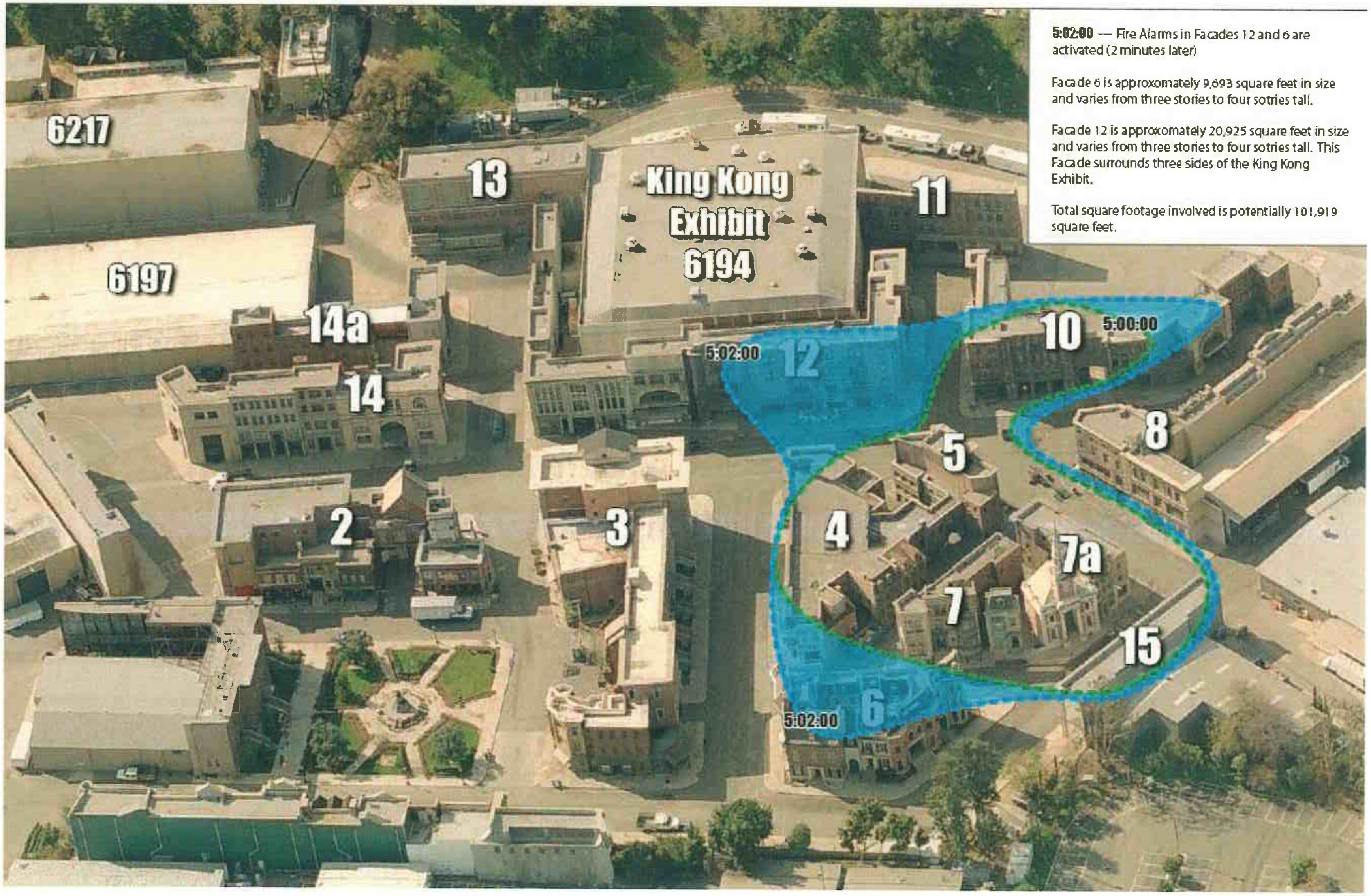
4:59:20 — Fire Alarm in Facade 15 is activated (7 minutes 4 seconds later)

Facade 15 is conservatively 7,134 square feet in size and is four stories tall.

Facade 15 was located across a 23 foot wide street from Facade 7a.

Total square footage involved at 14 minutes into the incident is now potentially 50,682 square feet.


5:00:00 — Fire Alarm in Facade 10 is activated (40 seconds after Facade 15)
Facade 10 is approxomately 20,619 square feet in size and is three stories tall.
Total square footage involved is potentially 71,301 square feet.
6217
6197
13
King Kong Exhibit 6194
11
10
5:00:00
14a
14
12
8
5
2
3
4
7a
7
4:59:20
15
6

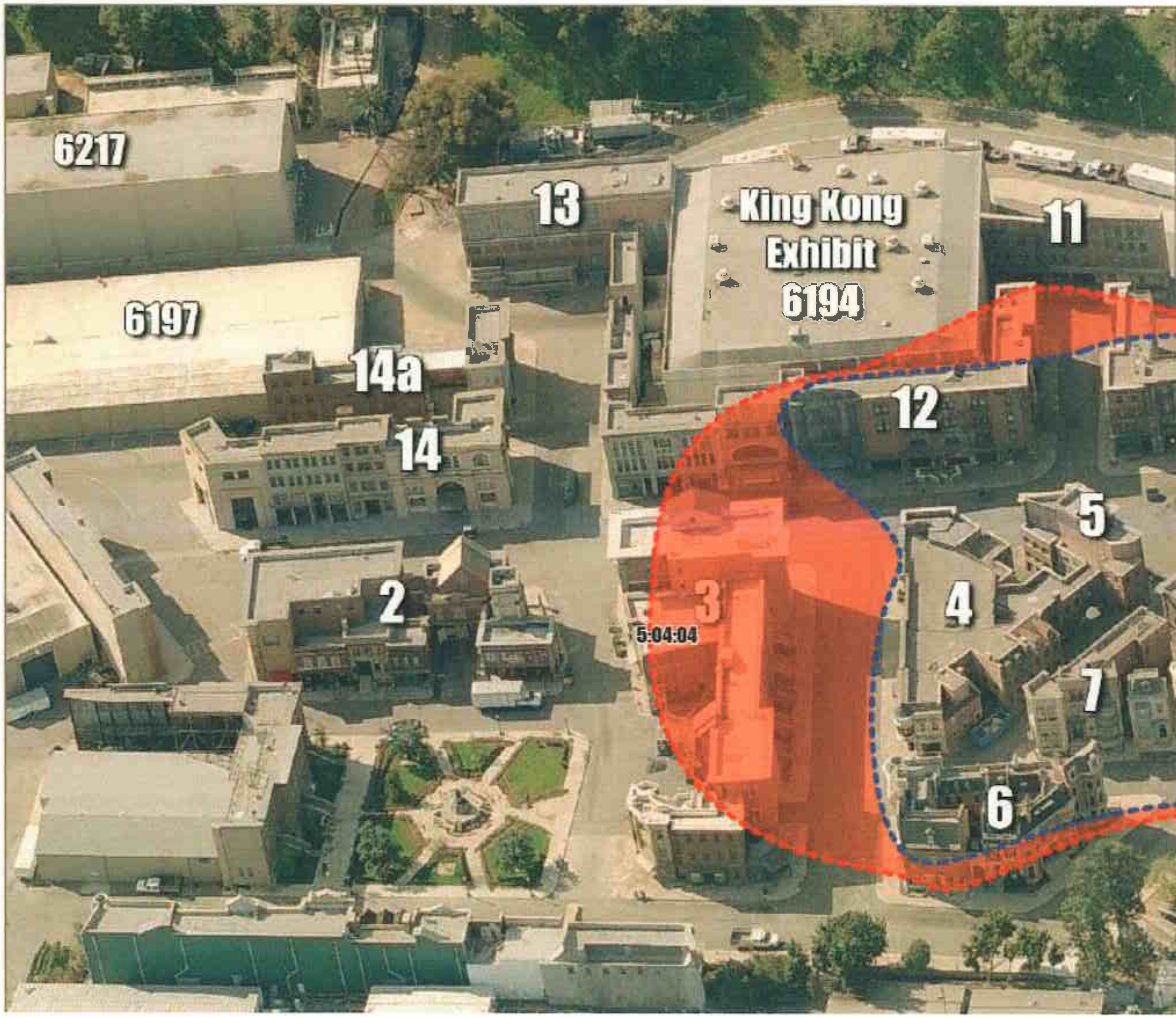


5:02:00 — Fire Alarms in Facades 12 and 6 are activated (2 minutes later)

Facade 6 is approxomately 9,693 square feet in size and varies from three stories to four sotries tall.

Facade 12 is approxomately 20,925 square feet in size and varies from three stories to four sotries tall. This Facade surrounds three sides of the King Kong Exhibit.

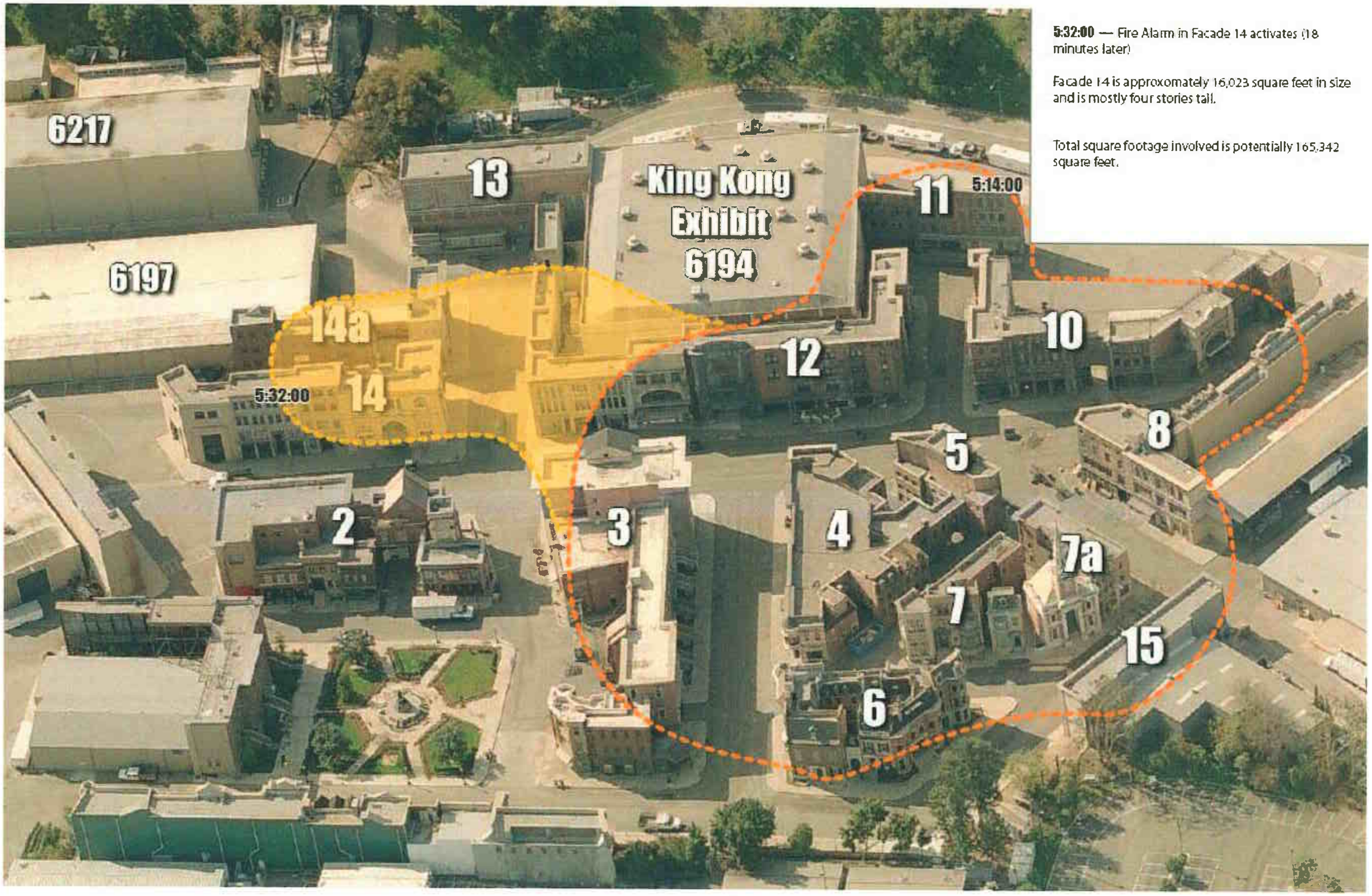
Total square footage involved is potentially 101,919 square feet.



5:04:04 — Fire Alarm in Facade 3 is detected (1 minute 2 seconds later)

Facade 3 is approxomately 34,095 square feet in size and varies from three stories to four stories tall.

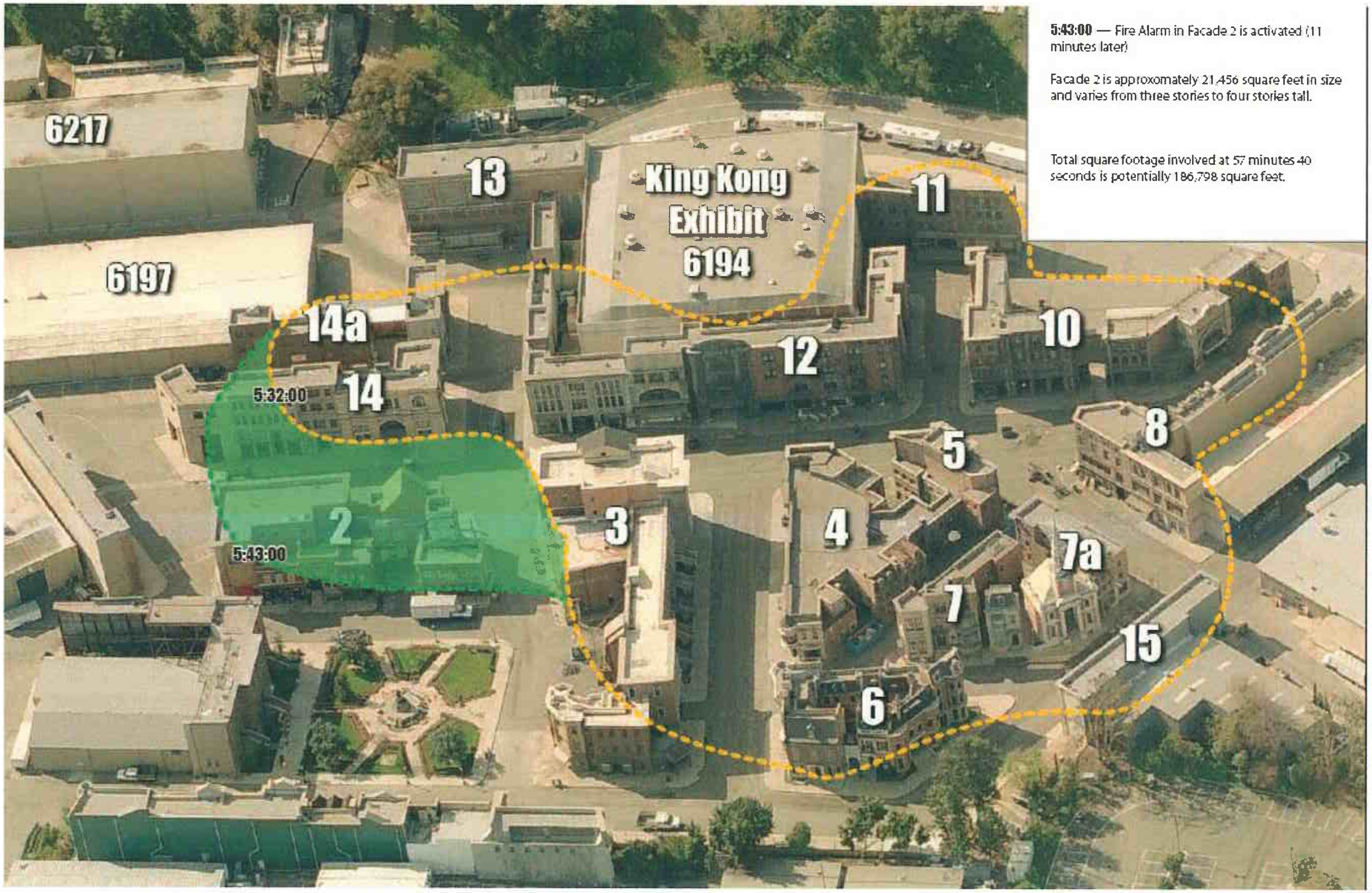
Total square footage involved 18 minutes 44 seconds after the first alarm was activated is potentially 145,074 square feet.



5:32:00 — Fire Alarm in Facade 14 activates (18 minutes later)

Facade 14 is approxomately 16,023 square feet in size and is mostly four stories tall.

Total square footage involved is potentially 165,342 square feet.



5:43:00 — Fire Alarm in Facade 2 is activated (11 minutes later)

Facade 2 is approxomately 21,456 square feet in size and varies from three stories to four stories tall.

Total square footage involved at 57 minutes 40 seconds is potentially 186,798 square feet.

Alarm Timeline and Required Fire Flow

To help illustrate the rapid spread of fire in the facades see smoke detector sequences. The fire was reported by NBC Universal before the first smoke detector activated as the smoke took a minute to drop in the façade to activate the detector. Time of alarm was 4:44 at Fire Command and Control, and the 1st Smoke Detector activated at 4:45AM.

Alarm Occurrence Report

CS# A50069
Site Name FACADES-FA
Address 3900 LANKERSHIM BOULEVARD
QUADRANT XXX
Universal City, CA 91608

AR ID
System Type DMP-DMP
UL Code
Polled Alarms 0

Installer
Corporate Account

Map | Pg | Coord | Open Early | Open Late | Close Early | Close Late

Incident# 336240 Date 6/1/2008 04:45:20 Elapsed Min Priority 60 Full Clear Disp

Date	Operator	Zone	State	Event	Location/Comment	User	Elapsed Sec.
6/1/2008 04:45:20		125	T	DM102 Trouble	FACADE 7B TRBL Zn_Desc: TRBL		0
6/1/2008 04:45:22	RORN			AA Alarm Accessed			2

Incident# 336250 Date 6/1/2008 04:46:20 Elapsed Min Priority 10 Full Clear Disp

Date	Operator	Zone	State	Event	Location/Comment	User	Elapsed Sec.
6/1/2008 04:46:20		124	A	DM011 DMP FIRE	FACADE 7B - ALARM Zn_Desc: AL		0
6/1/2008 04:46:22		125	R	2000 RESTORE	FACADE 7B TRBL Zn_Desc: TRBL		2
6/1/2008 04:46:33	RORN			AA Alarm Accessed			13
6/1/2008 04:47:12	RORN			PC Partial Clear	Priority:200 Delay:100		52

Fire at chaple at new york made notifications to EHS and Romo.Whaley.

Incident# 336270 Date 6/1/2008 04:48:16 Elapsed Min Priority 10 Full Clear Disp

Date	Operator	Zone	State	Event	Location/Comment	User	Elapsed Sec.
6/1/2008 04:48:16		114	A	DM011 DMP FIRE	FACADE 7A - ALARM Zn_Desc: AL		0
6/1/2008 04:48:17	RORN			AA Alarm Accessed			1
6/1/2008 04:49:10	RORN			PC Partial Clear	Priority:200 Delay:150		54

Rolled fire dept. via 911, notifications have been made.

Date	Operator	Zone	State	Event	Location/Comment	User	Elapsed Sec.
6/1/2008 04:50:12		124	R	2000 RESTORE	FACADE 7B - ALARM Zn_Desc: AL		116

Incident# 336290 Date 6/1/2008 04:50:14 Elapsed Min Priority 60 Full Clear Disp

Date	Operator	Zone	State	Event	Location/Comment	User	Elapsed Sec.
6/1/2008 04:50:14		125	T	DM102 Trouble	FACADE 7B TRBL Zn_Desc: TRBL		0
6/1/2008 04:50:14		125	R	2000 RESTORE	FACADE 7B TRBL Zn_Desc: TRBL		0
6/1/2008 04:50:15	RORN			AA Alarm Accessed			1
6/1/2008 04:51:01	RORN			PC Partial Clear	Priority:200 Delay:150		47

Fire at new york st. facade 7 , engine 51 is in area.

Incident# 336300 Date 6/1/2008 04:51:12 Elapsed Min Priority 60 Full Clear Disp

Date	Operator	Zone	State	Event	Location/Comment	User	Elapsed Sec.
6/1/2008 04:51:12		125	T	DM102 Trouble	FACADE 7B TRBL Zn_Desc: TRBL		0
6/1/2008 04:51:16	RORN			AA Alarm Accessed			4
6/1/2008 04:52:12		114	R	2000 RESTORE	FACADE 7A - ALARM Zn_Desc: AL		60

Alarm Occurrence Report

CS# A50059
Site Name FACADES-FA
Address 3900 LANKERSHIM BOULEVARD
QUADRANT XXX
Universal City, CA 91608

Alt ID
System Type DMP-DMP
UL Code
Polled Alarms 0

Installer
Corporate Account

Map	Pg	Coord	Open Early	Open Late	Close Early	Close Late

Incident# 336310 Date 6/1/2008 04:52:12 Elapsed Min Priority 10 Full Clear Disp

Date	Operator	Zone	State	Event	Location/Comment	User	Elapsed Sec.
6/1/2008 04:52:12		114	A	DM011 DMP FIRE	FACADE 7A - ALARM Zn_Desc: AL		0
6/1/2008 04:52:14		111	R	2000 RESTORE	FACADE 5 & 4 - TRBL Zn_Desc: TI		2
6/1/2008 04:52:14		115	T	DM102 Trouble	FACADE 7A - TRBL Zn_Desc: TRB		2
6/1/2008 04:52:16		111	T	DM102 Trouble	FACADE 5 & 4 - TRBL Zn_Desc: TI		4
6/1/2008 04:52:16		115	R	2000 RESTORE	FACADE 7A - TRBL Zn_Desc: TRB		4
6/1/2008 04:52:20	RORN			AA Alarm Accessed			8
6/1/2008 04:53:10		114	R	2000 RESTORE	FACADE 7A - ALARM Zn_Desc: AL		58
6/1/2008 04:53:12		115	T	DM102 Trouble	FACADE 7A - TRBL Zn_Desc: TRB		60
6/1/2008 04:53:22	RORN			PC Partial Clear	Priority:200 Delay:150		70

fire at facade 7 new york st. engine 51 is in area notifications have been made.

Incident# 336330 Date 6/1/2008 04:59:00 Elapsed Min Priority 10 Full Clear Disp

Date	Operator	Zone	State	Event	Location/Comment	User	Elapsed Sec.
6/1/2008 04:59:00		110	A	DM011 DMP FIRE	FACADE 5 & 4 - ALARM Zn_Desc:		0
6/1/2008 04:59:00		110	R	2000 RESTORE	FACADE 5 & 4 - ALARM Zn_Desc:		0
6/1/2008 04:59:02		132	A	DM011 DMP FIRE	FACADE 15 - ALARM Zn_Desc: AL		2
6/1/2008 04:59:02		111	R	2000 RESTORE	FACADE 5 & 4 - TRBL Zn_Desc: TI		2
6/1/2008 04:59:02	RORN			AA Alarm Accessed			2
6/1/2008 04:59:04		111	T	DM102 Trouble	FACADE 5 & 4 - TRBL Zn_Desc: TI		4
6/1/2008 05:00:00		108	A	DM011 DMP FIRE	FACADE 10 - ALARM Zn_Desc: AL		60
6/1/2008 05:01:24	RORN			PC Partial Clear	Priority:200 Delay:150		144

Fire at new york st engine 51 is in area notifications have been made.

Alarm Occurrence Report

CS# A50059
Site Name FACADES-FA
Address 3900 LANKERSHIM BOULEVARD
QUADRANT XXX
Universal City, CA 91608

Alt ID
System Type DMP-DMP
UL Code
Polled Alarms 0

Installer
Corporate Account

Map | Pg | Coord | Open Early | Open Late | Close Early | Close Late

Incident# 336350 | Date 6/1/2008 05:02:00 | Elapsed Min | Priority 10 | Full Clear Disp

Date	Operator	Zone	State	Event	Location/Comment	User	Elapsed Sec.
6/1/2008 05:02:00		116	A	DM011 DMP FIRE	FACADE 12 - ALARM Zn_Desc: AL		0
6/1/2008 05:02:00		112	R	2000 RESTORE	FACADE 6 - ALARM Zn_Desc: ALA		0
6/1/2008 05:02:00		113	T	DM102 Trouble	FACADE 6 - TRBL Zn_Desc: TRBL		0
6/1/2008 05:02:46	RORN			AA Alarm Accessed			46
6/1/2008 05:03:00		116	R	2000 RESTORE	FACADE 8 - ALARM Zn_Desc: ALA		60
6/1/2008 05:03:02		117	T	DM102 Trouble	FACADE 8 -TRBL Zn_Desc: TRBL		62
6/1/2008 05:03:02		117	R	2000 RESTORE	FACADE 8 -TRBL Zn_Desc: TRBL		62
6/1/2008 05:03:04		117	T	DM102 Trouble	FACADE 8 -TRBL Zn_Desc: TRBL		64
6/1/2008 05:04:02		132	R	2000 RESTORE	FACADE 15 - ALARM Zn_Desc: AL		122
6/1/2008 05:04:02		132	A	DM011 DMP FIRE	FACADE 15 - ALARM Zn_Desc: AL		122
6/1/2008 05:04:04		132	R	2000 RESTORE	FACADE 15 - ALARM Zn_Desc: AL		124
6/1/2008 05:04:04		106	A	DM011 DMP FIRE	FACADE 3 - ALARM Zn_Desc: ALA		124
6/1/2008 05:04:04		133	T	DM102 Trouble	FACADE 15 - TRBL Zn_Desc: TRB		124
6/1/2008 05:04:06		133	R	2000 RESTORE	FACADE 15 - TRBL Zn_Desc: TRB		126
6/1/2008 05:04:08		133	T	DM102 Trouble	FACADE 15 - TRBL Zn_Desc: TRB		128
6/1/2008 05:06:27	RORN			PC Partial Clear	Priority:200 Delay:150		267
	fire at new york st is surrounding facades are being affected engine 51 is in area.						
6/1/2008 05:08:02		106	R	2000 RESTORE	FACADE 3 - ALARM Zn_Desc: ALA		362

Incident# 336380 | Date 6/1/2008 05:08:02 | Elapsed Min | Priority 60 | Full Clear Disp

Date	Operator	Zone	State	Event	Location/Comment	User	Elapsed Sec.
6/1/2008 05:08:02		107	T	DM102 Trouble	FACADE 3 - TRBL Zn_Desc: TRBL		0
6/1/2008 05:09:23	RORN			AA Alarm Accessed			81
6/1/2008 05:11:12		108	R	2000 RESTORE	FACADE 10 - ALARM Zn_Desc: AL		190

Alarm Occurrence Report

CS# A50059
Site Name FACADES-FA
Address 3900 LANKERSHIM BOULEVARD
QUADRANT XXX
Universal City, CA 91608

Alt ID
System Type DMP-DMP
UL Code
Polled Alarms 0

Installer
Corporate Account

Map	Pg	Coord	Open Early	Open Late	Close Early	Close Late

Incident# 336420 Date 6/1/2008 05:11:14 Elapsed Min Priority 10 Full Clear Disp

Date	Operator	Zone	State	Event	Location/Comment	User	Elapsed Sec.
6/1/2008 05:11:14		108	A	DM011 DMP FIRE	FACADE 10 - ALARM Zn_Desc: AL		0
6/1/2008 05:11:14		109	T	DM102 Trouble	FACADE 10 - TRBL Zn_Desc: TRB		0
6/1/2008 05:11:16		109	R	2000 RESTORE	FACADE 10 - TRBL Zn_Desc: TRB		2
6/1/2008 05:11:20	RORN			AA Alarm Accessed			6
6/1/2008 05:11:59	RORN			PC Partial Clear	Priority:200 Delay:150		45
	New York st. is on fire surrounding facades are being affected. Engine 51 is in area notifications have been made.						
6/1/2008 05:13:16		108	R	2000 RESTORE	FACADE 10 - ALARM Zn_Desc: AL		122

Incident# 336430 Date 6/1/2008 05:13:16 Elapsed Min Priority 10 Full Clear Disp

Date	Operator	Zone	State	Event	Location/Comment	User	Elapsed Sec.
6/1/2008 05:13:18		108	A	DM011 DMP FIRE	FACADE 10 - ALARM Zn_Desc: AL		0
6/1/2008 05:13:18		108	R	2000 RESTORE	FACADE 10 - ALARM Zn_Desc: AL		0
6/1/2008 05:13:20		109	T	DM102 Trouble	FACADE 10 - TRBL Zn_Desc: TRB		2
6/1/2008 05:14:07	RORN			AA Alarm Accessed			49
6/1/2008 05:14:20		118	R	2000 RESTORE	FACADE 12 - ALARM Zn_Desc: AL		62
6/1/2008 05:14:22		118	A	DM011 DMP FIRE	FACADE 12 - ALARM Zn_Desc: AL		64
6/1/2008 05:14:22		118	R	2000 RESTORE	FACADE 12 - ALARM Zn_Desc: AL		64
6/1/2008 05:14:22		120	R	2000 RESTORE	FACADE 11 - ALARM Zn_Desc: AL		64
6/1/2008 05:14:24		120	A	DM011 DMP FIRE	FACADE 11 - ALARM Zn_Desc: AL		66
6/1/2008 05:14:24		120	R	2000 RESTORE	FACADE 11 - ALARM Zn_Desc: AL		66
6/1/2008 05:14:24		119	T	DM102 Trouble	FACADE 12 - TRBL Zn_Desc: TRB		66
6/1/2008 05:14:26		119	R	2000 RESTORE	FACADE 12 - TRBL Zn_Desc: TRB		68
6/1/2008 05:14:28		119	T	DM102 Trouble	FACADE 12 - TRBL Zn_Desc: TRB		70
6/1/2008 05:14:28		121	T	DM102 Trouble	FACADE 11 - TRBL Zn_Desc: TRB		70
6/1/2008 05:14:30		121	R	2000 RESTORE	FACADE 11 - TRBL Zn_Desc: TRB		72
6/1/2008 05:14:30		121	T	DM102 Trouble	FACADE 11 - TRBL Zn_Desc: TRB		72
6/1/2008 05:15:17	RORN			PC Partial Clear	Priority:200 Delay:150		119
	fire at new york st affecting surrounding facades. engine 51 is in area. notifications have been made.						

CS# A50059
Site Name FACADES-FA
Address 3900 LANKERSHIM BOULEVARD
QUADRANT XXX
Universal City, CA 91608

Alt ID
System Type DMP-DMP
UL Code
Policed Alarms 0

Installer
Corporate Account

Map | Pg | Coord | Open Early | Open Late | Close Early | Close Late

Incident# 336450 Date 6/1/2008 05:16:28 Elapsed Min Priority 60 Full Clear Disp

Date	Operator	Zone	State	Event	Location/Comment	User	Elapsed Sec.
6/1/2008 05:16:28		103	T	DM102 Trouble	FACADE 2 - TRBL Zn_Desc: TRBL		0
6/1/2008 05:16:30	RORN			AA Alarm Accessed			2
6/1/2008 05:18:03	RORN			PC Partial Clear	Priority:200 Delay:360		95

fire at new york st. affecting surrounding facades engine 51 is in area, notifications have been made.

Incident# 336490 Date 6/1/2008 05:23:28 Elapsed Min Priority 10 Full Clear Disp

Date	Operator	Zone	State	Event	Location/Comment	User	Elapsed Sec.
6/1/2008 05:23:28		122	A	DM011 DMP FIRE	FACADE 12A - ALARM Zn_Desc: A		0
6/1/2008 05:27:07	RORN			AA Alarm Accessed			219
6/1/2008 05:27:17	RORN			PC Partial Clear	Priority:200 Delay:360		229

Incident# 336560 Date 6/1/2008 05:32:52 Elapsed Min Priority 10 Full Clear Disp

Date	Operator	Zone	State	Event	Location/Comment	User	Elapsed Sec.
6/1/2008 05:32:52		128	A	DM011 DMP FIRE	FACADE 14 - ALARM Zn_Desc: AL		0
6/1/2008 05:32:52	RORN			AA Alarm Accessed			0
6/1/2008 05:33:21	RORN			PC Partial Clear	Priority:200 Delay:750		29

Incident# 336580 Date 6/1/2008 05:34:04 Elapsed Min Priority 10 Full Clear Disp

Date	Operator	Zone	State	Event	Location/Comment	User	Elapsed Sec.
6/1/2008 05:34:04		126	A	DM011 DMP FIRE	FACADE 13 - ALARM Zn_Desc: AL		0
6/1/2008 05:36:02		130	A	DM011 DMP FIRE	FACADE 14A - ALARM Zn_Desc: A		118
6/1/2008 05:36:54	RORN			AA Alarm Accessed			170
6/1/2008 05:37:02		122	R	2000 RESTORE	FACADE 12A - ALARM Zn_Desc: A		178
6/1/2008 05:37:04		123	T	DM102 Trouble	FACADE 12A - TRBL Zn_Desc: TR		180
6/1/2008 05:38:06		122	A	DM011 DMP FIRE	FACADE 12A - ALARM Zn_Desc: A		242
6/1/2008 05:38:06		122	R	2000 RESTORE	FACADE 12A - ALARM Zn_Desc: A		242
6/1/2008 05:38:08		123	R	2000 RESTORE	FACADE 12A - TRBL Zn_Desc: TR		244
6/1/2008 05:38:08		123	T	DM102 Trouble	FACADE 12A - TRBL Zn_Desc: TR		244
6/1/2008 05:41:27	RORN			PC Partial Clear	Priority:200 Delay:750		443

fire at new york st. is affecting surrounding facades engine 51 is in area, notifications have been made

CS# A50059
Site Name FACADES-FA
Address 3900 LANKERSHIM BOULEVARD
QUADRANT XXX
Universal City, CA 91608

Alt ID
System Type DMP-DMP
UL Code
Polled Alarms 0

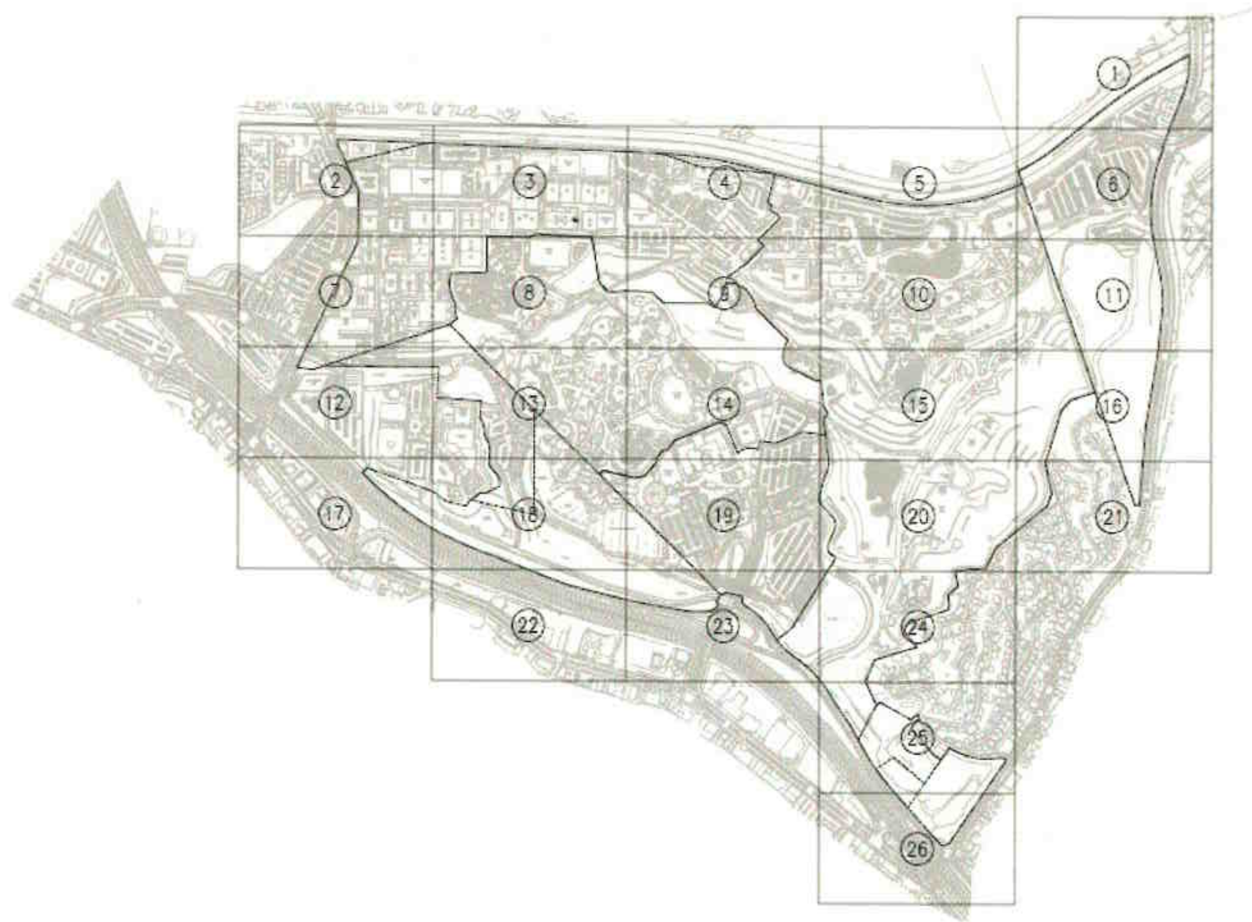
Installer
Corporate Account

Map Pg Coord Open Early Open Late Close Early Close Late

Incident# 336730 Date 6/1/2008 06:43:12 Elapsed Min Priority 10 Full Clear Disp

Date	Operator	Zone	State	Event	Location/Comment	User	Elapsed Sec.
6/1/2008 06:43:12		102	A	DM011 DMP FIRE	FACADE 2 - ALARM Zn_Desc: ALA		0
6/1/2008 06:43:12		126	R	2000 RESTORE	FACADE 13 - ALARM Zn_Desc: AL		0
6/1/2008 06:43:12		130	R	2000 RESTORE	FACADE 14A - ALARM Zn_Desc: A		0
6/1/2008 06:43:14		126	A	DM011 DMP FIRE	FACADE 13 - ALARM Zn_Desc: AL		2
6/1/2008 06:43:14		126	R	2000 RESTORE	FACADE 13 - ALARM Zn_Desc: AL		2
6/1/2008 06:43:16		127	T	DM102 Trouble	FACADE 13 - TRBL Zn_Desc: TRB		4
6/1/2008 06:43:16		131	T	DM102 Trouble	FACADE 14A - TRBL Zn_Desc: TR		4
6/1/2008 06:43:18		127	R	2000 RESTORE	FACADE 13 - TRBL Zn_Desc: TRB		6
6/1/2008 06:43:20		127	T	DM102 Trouble	FACADE 13 - TRBL Zn_Desc: TRB		8
6/1/2008 06:44:16		128	R	2000 RESTORE	FACADE 14 - ALARM Zn_Desc: AL		64
6/1/2008 06:44:16		128	A	DM011 DMP FIRE	FACADE 14 - ALARM Zn_Desc: AL		64
6/1/2008 06:44:18		128	R	2000 RESTORE	FACADE 14 - ALARM Zn_Desc: AL		66
6/1/2008 06:44:18		129	T	DM102 Trouble	FACADE 14 - TRBL Zn_Desc: TRB		66
6/1/2008 06:44:20		129	R	2000 RESTORE	FACADE 14 - TRBL Zn_Desc: TRB		68
6/1/2008 06:44:22		129	T	DM102 Trouble	FACADE 14 - TRBL Zn_Desc: TRB		70
6/1/2008 06:46:31	RORN			AA Alarm Accessed			199
6/1/2008 06:49:30	RORN			PC Partial Clear	Priority:200 Delay:750		378
	fire at n.y st. affecting surrounding facades engine 51 made notifications.						
6/1/2008 06:55:02		102	R	2000 RESTORE	FACADE 2 - ALARM Zn_Desc: ALA		710
6/1/2008 06:55:04		103	R	2000 RESTORE	FACADE 2 - TRBL Zn_Desc: TRBL		712

Attachment C: Fire Water Plans



IKE

NBC UNIVERSAL

FIRE WATER

N

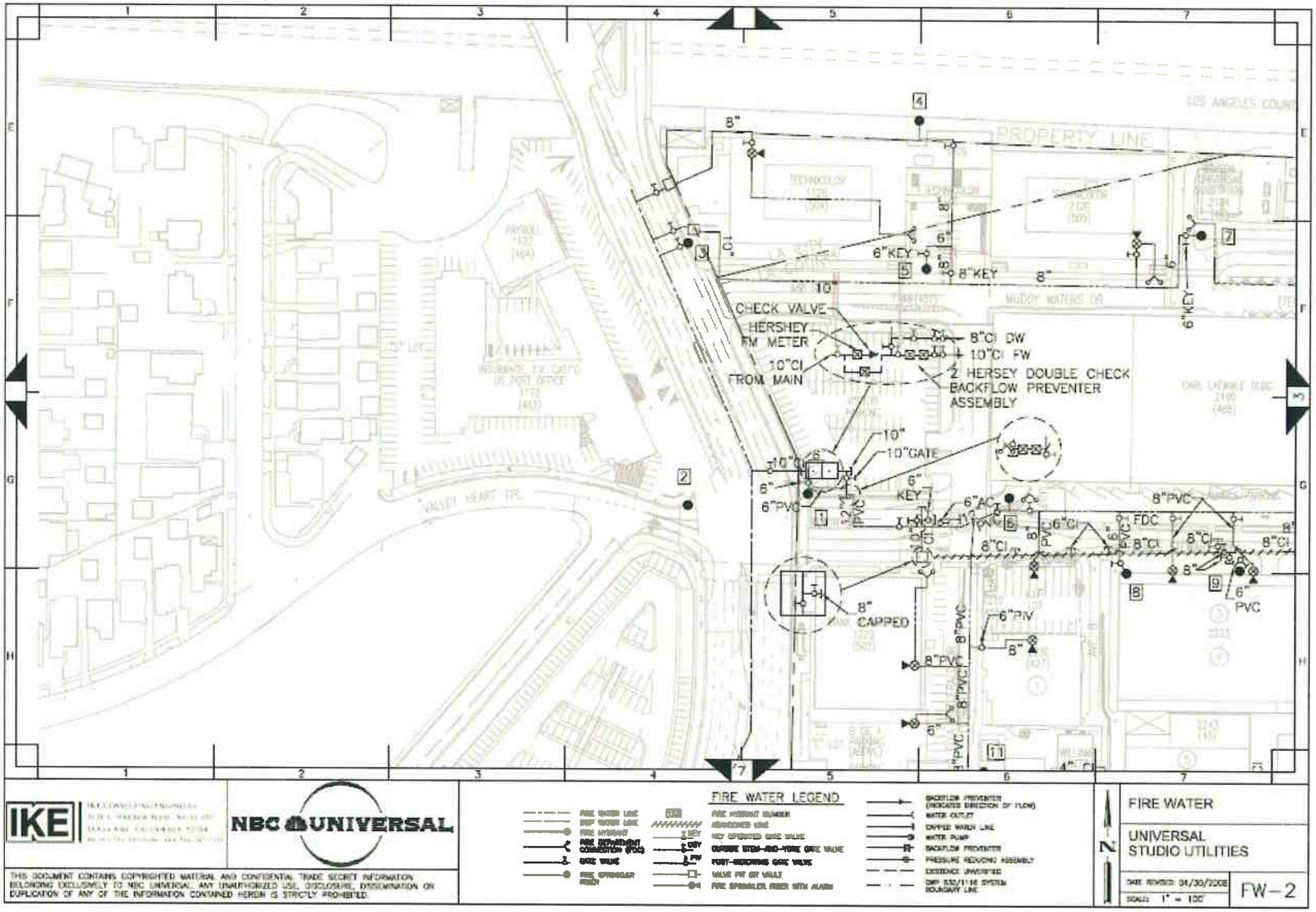
SHEET INDEX

UNIVERSAL STUDIO UTILITIES

DATE REVISED: 04/30/2006

SCALE: 1" = 800'

FW


PROPERTY LINE
LOS ANGELES COUNTY
MUDDY WATERS DR
VALLEY HEART DR.
CHECK VALVE
HERSHEY FM METER
10"CI FROM MAIN
8"CI DW
10"CI FW
2 HERSEY DOUBLE CHECK BACKFLOW PREVENTER ASSEMBLY
10"GATE
6"KEY
8"KEY
6"PVC
8"PVC
8"CI
6"AC
FDC
6"PIV
8" CAPPED
FIRE WATER LEGEND
FIRE WATER LINE
DWP WATER LINE
FIRE HYDRANT
FIRE DEPARTMENT CONNECTION (FDC)
GATE VALVE
FIRE SPRINKLER RISER
FIRE HYDRANT NUMBER
ABANDONED LINE
KEY OPERATED GATE VALVE
OUTSIDE STEM-AND-YOKE GATE VALVE
POST-INDICATING GATE VALVE
VALVE PIT OR VAULT
FIRE SPRINKLER RISER WITH ALARM
BACKFLOW PREVENTER (INDICATES DIRECTION OF FLOW)
WATER OUTLET
CAPPED WATER LINE
WATER PUMP
BACKFLOW PREVENTER
PRESSURE REDUCING ASSEMBLY
EXISTENCE UNVERIFIED
DWP 530/1116 SYSTEM BOUNDARY LINE
IKE
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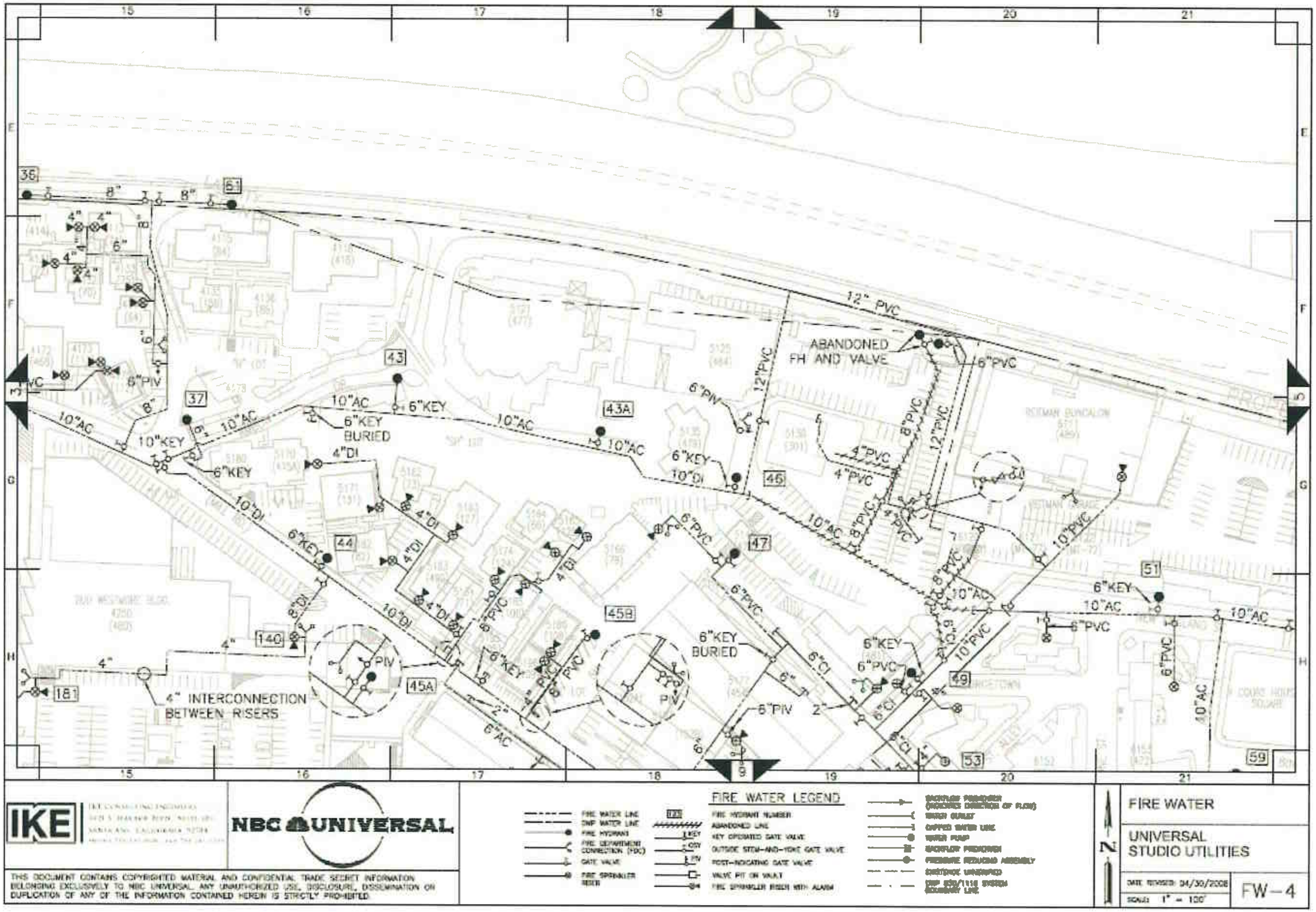
FIRE WATER
UNIVERSAL STUDIO UTILITIES
N
DATE REVISED: 04/30/2008
SCALE: 1" = 100'
FW-2



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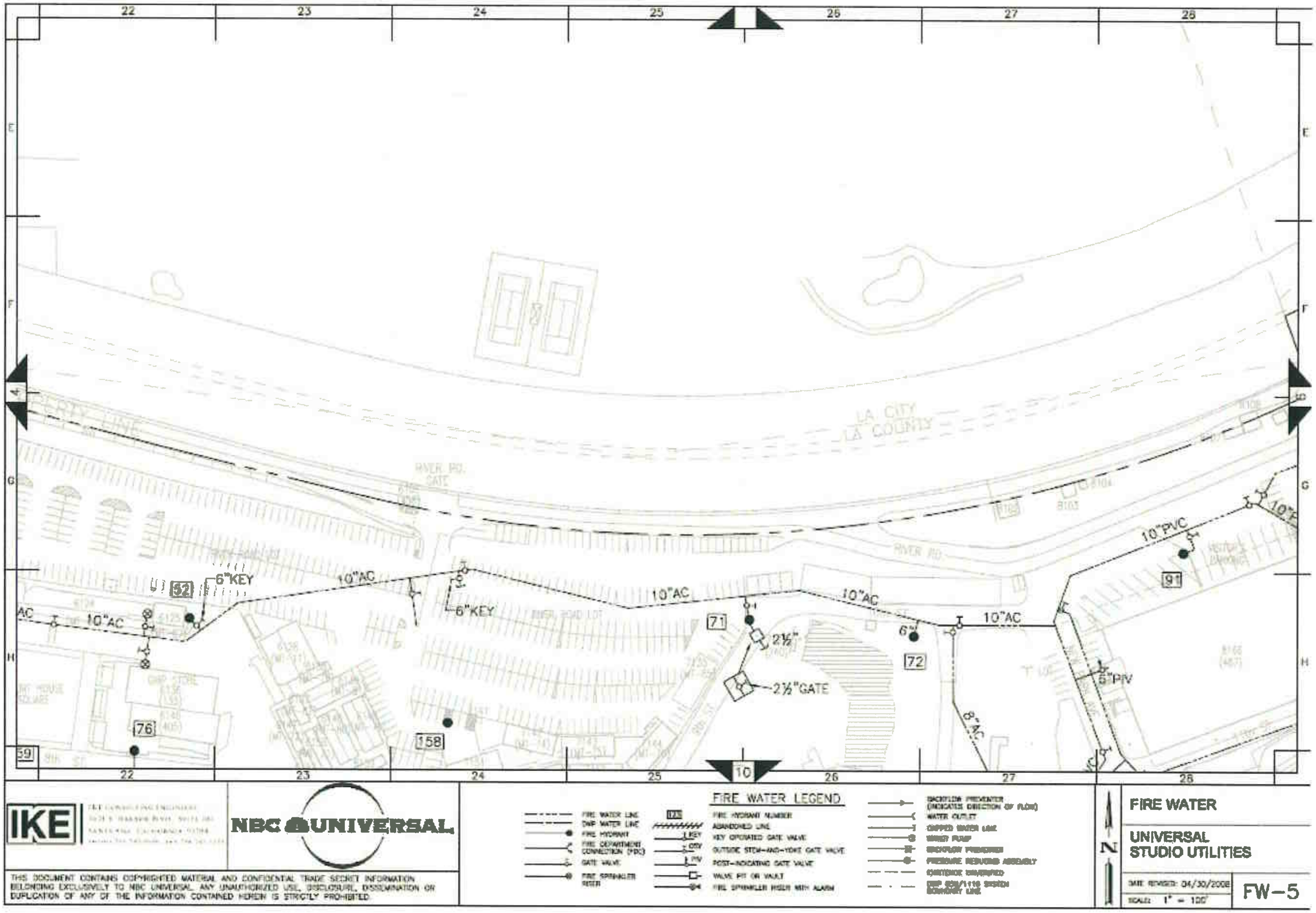
FIRE WATER

UNIVERSAL STUDIO UTILITIES

DATE REVISED: 04/30/2008

SCALE: 1" = 100'

FW-4



FIRE WATER LEGEND
FIRE WATER LINE
DWP WATER LINE
FIRE HYDRANT
FIRE DEPARTMENT CONNECTION (FDC)
GATE VALVE
FIRE SPRINKLER RISER
FIRE HYDRANT NUMBER
ABANDONED LINE
KEY OPERATED GATE VALVE
OUTSIDE STEM-AND-YOKE GATE VALVE
POST-INDICATING GATE VALVE
VALVE PIT OR VAULT
FIRE SPRINKLER RISER WITH ALARM
BACKFLOW PREVENTER (INDICATES DIRECTION OF FLOW)
WATER OUTLET
CAPPED WATER LINE
WATER PUMP
PRESSURE REDUCING ASSEMBLY
10"AC
10"PVC
6"KEY
2½"GATE
5"PIV
8"AC
LA CITY
LA COUNTY
RIVER RD.
52
71
72
76
91
158
59
10
IKE
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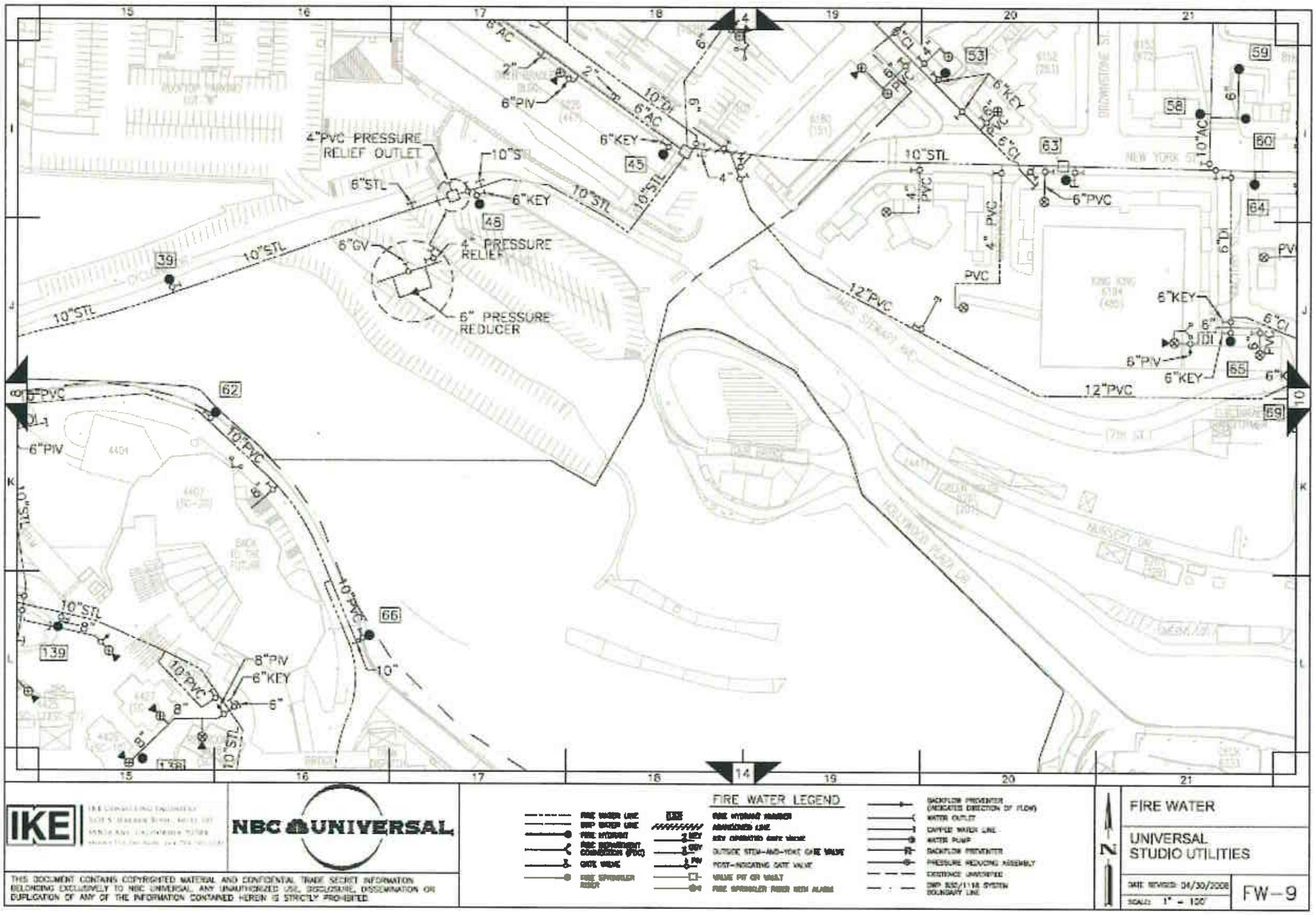
FIRE WATER
UNIVERSAL STUDIO UTILITIES
DATE REVISED: 04/30/2008
SCALE: 1" = 100'
FW-5


4"PVC PRESSURE RELIEF OUTLET
6"STL
10"STL
6"KEY
6"GV
4" PRESSURE RELIEF
6" PRESSURE REDUCER
6"PIV
10"DI
6"AC
10"STL
12"PVC
6"PVC
4"PVC
6"CI
10"AC
NEW YORK ST
10"PVC
8"PIV
6"KEY
FIRE WATER LEGEND
IKE
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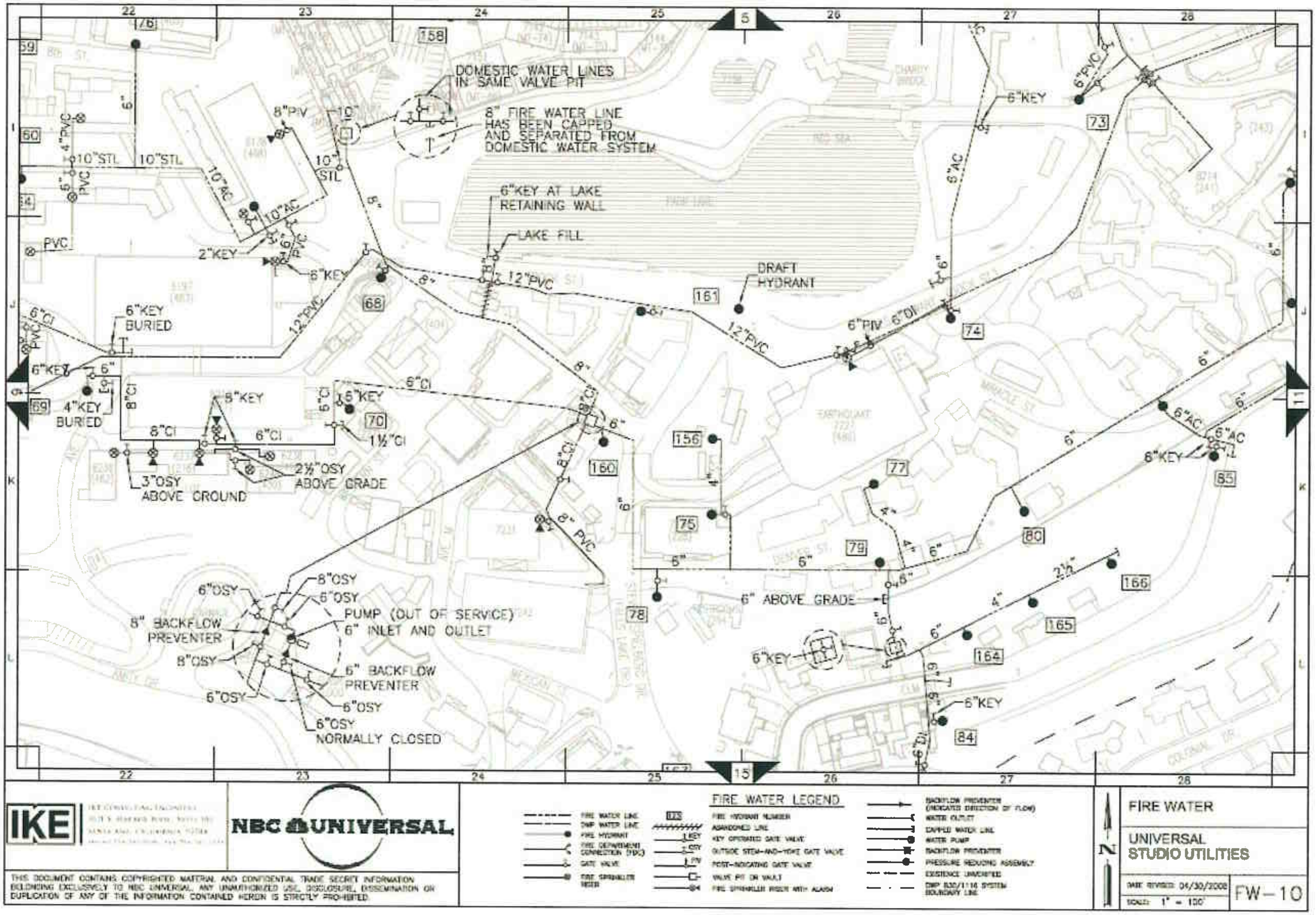
FIRE WATER
UNIVERSAL STUDIO UTILITIES
FW-9



DOMESTIC WATER LINES IN SAME VALVE PIT
8" FIRE WATER LINE HAS BEEN CAPPED AND SEPARATED FROM DOMESTIC WATER SYSTEM
6"KEY AT LAKE RETAINING WALL
LAKE FILL
DRAFT HYDRANT
6"KEY BURIED
4"KEY BURIED
3"OSY ABOVE GROUND
2½"OSY ABOVE GRADE
PUMP (OUT OF SERVICE) 6" INLET AND OUTLET
8" BACKFLOW PREVENTER
6" BACKFLOW PREVENTER
6"OSY NORMALLY CLOSED
6" ABOVE GRADE
FIRE WATER LEGEND
FIRE WATER LINE
DWP WATER LINE
FIRE HYDRANT
FIRE DEPARTMENT CONNECTION (FDC)
GATE VALVE
FIRE SPRINKLER RISER
FIRE HYDRANT NUMBER
ABANDONED LINE
KEY OPERATED GATE VALVE
OUTSIDE STEM-AND-YOKE GATE VALVE
POST-INDICATING GATE VALVE
VALVE PIT OR VAULT
FIRE SPRINKLER RISER WITH ALARM
BACKFLOW PREVENTER (INDICATES DIRECTION OF FLOW)
WATER OUTLET
CAPPED WATER LINE
WATER PUMP
BACKFLOW PREVENTER
PRESSURE REDUCING ASSEMBLY
EXISTENCE UNVERIFIED
DWP 830/1114 SYSTEM BOUNDARY LINE
IKE
NBC UNIVERSAL
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FIRE WATER
UNIVERSAL
STUDIO UTILITIES
DATE REVISED: 04/30/2008
SCALE: 1" = 100'
FW-10

Appendix FEIR-12

Climate Change Technical Report

Climate Change Technical Report
NBCUniversal Evolution Plan

Prepared for:
Universal City Studios LLLP, L.P.
Los Angeles, California

Prepared by:
Eric C. Lu, Senior Manager
Stanley Hayes, Principal

ENVIRON International Corporation
Irvine, California

Date:
June 2012

Project Numbers:
0317201A

ENVIRON

Contents

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List of Appendices

Q:\N\NBCUniversal\AQ EIR\Report\GHG Project\NBCU Project GHG tech rpt 120629.docx

Acronyms and Abbreviations

ARB	Air Resources Board
BAU	Business-As-Usual
CalEEMod	California Emission Estimator Model
CARB	California Air Resources Board
CEC	California Energy Commission
CEUS	California End Use Survey
CEQA	California Environmental Quality Act
CO_2	carbon dioxide
CO_2e	CO_2 equivalents
DEIR	Draft Environmental Impact Report
EIR	Environmental Impact Report
EMFAC	EMission FACtors software program
ENVIRON	ENVIRON International Corporation
FED	Final Supplement to the AB 32 Scoping Plan Functional Equivalent Document
FEIR	Final Environmental Impact Report
GHGs	greenhouse gases
GWP	global warming potential
IPCC	Intergovernmental Panel on Climate Change
LADWP	Los Angeles Department of Water and Power
LCFS	low-carbon fuel standard
MMT	Million metric tonne
MSW	municipal solid waste management
$MTCO_2e$	metric tonnes of CO_2 equivalent
OFFROAD	OFFROAD Emissions Inventory Program model
RASS	Residential Appliance Saturation Survey
SCAQMD	South Coast Air Quality Management District
SCE	Southern California Edison
the City	City of Los Angeles
the County	County of Los Angeles
the Project	NBC Universal Evolution Plan
the Project Site	391 acres located approximately two miles north of Hollywood and 10 miles northwest of downtown Los Angeles
tonnes	Metric tonnes; 1,000 kilograms
TDM	Transportation Demand Management
USEPA	United States Environmental Protection Agency
Working Group	Threshold Working Group

1 Executive Summary

In support of the Final Environmental Impact Report (FEIR) Climate Change section, ENVIRON International Corporation (ENVIRON) prepared this Climate Change Technical Report to update the assessment of the Greenhouse Gas (GHG) emissions associated with the NBC Universal Evolution Plan (the Project), including emissions generated during construction and operation. This analysis makes use of the assumptions previously reported in the Draft Environmental Impact Report (DEIR), but incorporates changes due to the evolving science of evaluating GHG issues since the completion of the DEIR. The primary technical change includes the evaluation of the GHG emissions using CalEEMod.[1] CalEEMod is a statewide program designed to calculate both criteria and GHG emissions from development projects in California. This model was developed under the auspices of the SCAQMD and received input from other California air districts. CalEEMod was developed for use in the assessment of project emissions after the release of the DEIR. CalEEMod utilizes widely accepted models for emission estimates combined with appropriate default data that can be used if site-specific information is not available.

As discussed in Section 2, the Project would include the development of approximately 1.83 million square feet of net new studio, studio office, entertainment, entertainment retail, and related uses, including 500 hotel rooms and related facilities. In addition, the Project would include approximately 2,937 residential dwelling units and 115,000 square feet of retail/commercial uses, and up to 65,000 square feet of community serving uses (e.g., community center). To accommodate the proposed development, approximately 638,000 square feet of existing studio, office, and entertainment uses would be demolished.

As discussed in Section 3, the regulatory setting also has changed since the completion of the DEIR. On August 19, 2011, CARB released a Final Supplement to the AB 32 Scoping Plan Functional Equivalent Document ("FED" or "2011 Scoping Plan") that updated the AB 32 Scoping Plan originally adopted in 2008. In the FED, CARB updated the projected Business-As-Usual (BAU) emissions for 2020 based on updated economic forecasts due to the economic downturn. The CARB 2020 BAU projection for GHG emissions in California was originally estimated to be 596 MMTCO_2e. The updated CARB 2020 BAU projection in the FED is approximately 545 MMTCO_2e.[2, 3] Considering the updated BAU estimate of 545 MMTCO_2e by 2020, CARB now estimates a 21.7 percent reduction below the estimated statewide BAU levels is necessary to return to 1990 emission levels (i.e., 427 MMTCO_2e) by 2020, instead of the 28.5% BAU reduction previously reported under the AB 32 Scoping Plan (2008).[4]

---

1 SCAQMD, 2011, California Emissions Estimator Model. Available at: http://www.caleemod.com/ Accessed: December 2011.

2 CARB, 2011. Attachment D, Final Supplement to the AB 32 Scoping Plan Functional Equivalent Document. August 19. Available at: http://www.arb.ca.gov/cc/scopingplan/document/final_supplement_to_sp_fed.pdf. Accessed: June 2012.

3 CARB, 2011. Status of Scoping Plan Measures. Available at: http://www.arb.ca.gov/cc/scopingplan/sp_measures_implementation_timeline.pdf. Accessed: June 2012.

4 Note that CARB also provided an even lower emissions 2020 BAU inventory forecast of approximately 507 MMTCO_2e, which took credit for certain GHG reduction measures already in place. If this lower forecast is

Section 4 describes the CEQA significance threshold utilized in the DEIR and herein. Section 5 describes the standard emission estimation methods employed to determine Project GHG emissions from construction and operations. Section 6 presents the Project's GHG emission inventories and compares them to the CEQA significance threshold.

Summary Table 9b shows total GHG emissions for construction and operation of the Project and the CARB 2020 BAU scenario. The CARB 2020 BAU GHG emissions inventory is 89,890 MT CO_2e per year. The Project GHG emissions inventory is 59,715 MT CO_2e per year. The Project represents a 33.6 percent reduction from a CARB 2020 BAU scenario due to the Project's sustainability commitments and changes in emission factors due to implementation of statewide GHG emissions reduction measures. The analysis set forth herein shows that the Project would be consistent with both the AB 32 Scoping Plan (2008) and the FED, as was concluded in the DEIR.

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used, the necessary reduction from BAU is approximately 16%. However, in order to be consistent with the analysis in the 2008 Scoping Plan, which did not take credit for any GHG reduction measures, this analysis uses a comparison to the BAU inventory that only accounted for the economic adjustments to the BAU inventory (i.e., 545 $MMTCO_2e$).

2 Introduction

This report updates the evaluation of the greenhouse gas (GHG) emissions associated with the development of the Universal Studios property. This analysis includes the Project GHG emission inventory that is used to determine climate change impacts as proposed by the South Coast Air Quality Management District (SCAQMD). This report documents the methodologies used by ENVIRON in developing the GHG emission inventory and determining significance under the California Environmental Quality Act (CEQA) GHG thresholds.

2.1 Project Description

The Project is described in detail in the DEIR. For the convenience of the reader, the project description is summarized here.

The Universal Studios property comprises approximately 391 acres located approximately two miles north of Hollywood and 10 miles northwest of downtown Los Angeles (the Project Site). The Project Site is located approximately 1.5 miles south and east of the junction of US Route 101 (Hollywood Freeway) and State Route 134 (Ventura Freeway). The Project Site is generally bounded by the Los Angeles River Flood Control Channel to the north, the Hollywood Freeway to the south, Barham Boulevard and residences to the east, and Lankershim Boulevard and the Universal City Metro Rail Red Line Station to the west.

The Project Site is currently located within two jurisdictions, with approximately 95 acres (24 percent) located within the City of Los Angeles (the City) and 296 acres (76 percent) located within the unincorporated area of Los Angeles County (the County). The City portions are currently located within the northeastern corner of the Project Site along Barham Boulevard; the southeastern corner of the Project Site along Barham Boulevard and Buddy Holly Drive; the southwestern portion of the Project Site, adjacent to the Hollywood Freeway and along the south side of Universal Hollywood Drive as it extends towards Lankershim Boulevard; and two small slivers of land along the northern boundary. The portion of the Project Site within County jurisdiction is a contiguous area encompassing most of the northern, central, and western portions of the Project Site.

The proposed Project includes the development of approximately 1.83 million square feet of net new studio, studio office, office, entertainment, entertainment retail, and related uses, including 500 hotel rooms and related facilities, which would be constructed within the Studio, Entertainment and Business Areas. In addition, approximately 2,937 residential dwelling units and 115,000 square feet of retail/commercial uses and up to 65,000 square feet of community serving uses would be constructed within the proposed Mixed-Use Residential Area along the eastern portion of the Project Site. To accommodate the proposed development, approximately 638,000 square feet of existing studio, office, and entertainment uses would be demolished. The Project includes the proposed annexation of 76 acres of land from the County to the City and detachment of 32 acres of land from the City to the County. The result of the annexation would be to place all of the proposed Mixed-Use Residential Area uses within the City. The NBC Universal Evolution Plan EIR assesses Project impacts under proposed conditions (*i.e.*, with annexation) and under current jurisdictional boundaries (*i.e.*, no annexation). Table 1 provides a summary comparison of the net new square footage for the proposed development program in the column labeled proposed Project (Annexation Scenario).

Should the proposed annexation not occur, Table 1 also provides a summary comparison of the net new square footage for the proposed development program in the column labeled No Annexation Scenario. Similar to the Annexation Scenario, the development of approximately 1.83 million square feet of net new studio, studio office, office, entertainment, entertainment retail, and related uses, including 500 hotel rooms and related facilities, plus 2,937 residential units, 115,000 square feet of retail/commercial, and 65,000 square feet of community serving uses would occur; however, these uses would be positioned based on existing jurisdictional boundaries. Specifically, the residential land uses proposed for the eastern edge of the Project Site would be located on both City and County lands, while an increased mix of commercial, office, and studio office would be located within City boundaries. The proposed hotel would be situated within the boundaries of the City under the No Annexation scenario.

Four principal Areas are currently identifiable on the Project Site: (1) the Studio Area, which consists mainly of studio offices and production facilities for movie, television and commercial production; (2) the Entertainment Area, encompassing two discrete sub-areas: Universal Studios Hollywood, which is an admission based entertainment venue that includes a tram tour through the existing Back Lot Area, and Universal City Walk and its related uses which are mainly entertainment retail venues, including Universal City Cinemas, Gibson Amphitheater, retail, restaurant, and other entertainment opportunities; (3) the Business Area, which encompasses the offices and related structures along the western portion of the Project Site fronting Lankershim Boulevard; and (4) the Back Lot Area, which currently provides production facilities, movie sets, and portions of the Universal Studios Hollywood entertainment venue. The proposed Project builds upon the four existing Areas and modifies portions of the existing Back Lot Area to create a new Mixed-Use Residential Area and incorporates the remaining Back Lot Area into the Studio Area.

2.2 Report Overview

The City of Los Angeles is the lead agency for the Project under the California Environmental Quality Act (CEQA). The City previously determined that an Environmental Impact Report (EIR) be prepared as part of its CEQA review process [5] In support of the EIR's Climate Change section, a Greenhouse Gas (GHG) Technical Report was prepared by CTG Energetics, Inc., in March 2010.[6]The analysis set forth herein has been prepared to incorporate several changes in evaluating a project's potential impacts on climate change that have arisen since preparation of the original technical report. The key changes include the following:

- Using CalEEMod model to estimate GHG emissions;
- Utilizing the FED to inform the comparison between Project emissions and BAU emissions; and

[5] City of Los Angeles (LAC). 2007. "Notice of Preparation and Notice of Public Scoping Meeting." City of Los Angeles, Department of City Planning. July 19.
[6] CTG. 2010. Appendix Q. Global Warming Technical Report.

- Incorporating new state law regarding an increase in the Renewable Portfolio Standard (RPS).

These updates are discussed in more detail in following sections of the Technical Report. The remaining sections of this report describe the methods used to conduct this analysis.

3 Regulatory Environment for the GHG Inventory

The climate change regulatory setting – federal, state and local – is complex and rapidly evolving. This section identifies only regulatory developments germane to this updated GHG emissions report.

3.1 California Legislation

California has enacted several pieces of legislation that relate to GHG emissions and climate change, much of which sets aggressive goals for GHG reductions within the state. Per Senate Bill 97, the California Natural Resources Agency adopted amendments to the CEQA Guidelines, which address the specific obligations of public agencies when analyzing GHG emissions under CEQA to determine a project's effects on the environment. However, neither a threshold of significance nor any specific mitigation measures are included or provided in these CEQA Guideline amendments.

3.1.1 Assembly Bill 32 (Statewide GHG Reductions)

The California Global Warming Solutions Act of 2006, widely known as AB 32, requires the California Air Resources Board (CARB) to develop and enforce regulations for the reporting and verification of statewide GHG emissions. CARB is directed to set a statewide GHG emission limit, based on 1990 levels, to be achieved by 2020. The bill set a timeline for adopting a scoping plan for achieving GHG reductions in a technologically and economically feasible manner.

The heart of the bill is the requirement that statewide GHG emissions be reduced to 1990 levels by 2020. As determined by CARB, California must reduce GHG emissions to a level that is approximately 28.4% below CARB's 2020 "business-as-usual" GHG emission projections (as set forth in the 2008 Scoping Plan) to achieve this goal[7] The bill requires CARB to adopt rules and regulations in an open public process to achieve the maximum technologically feasible and cost-effective GHG reductions. Key AB 32 milestones were as follows:

June 30, 2007—Identification of discrete early action greenhouse gas emissions reduction measures. On June 21, 2007, CARB satisfied this requirement by approving three early action measures. These were later supplemented by adding six other discrete early action measures.

January 1, 2008—Identification of the 1990 baseline GHG emissions level and approval of a statewide limit equivalent to that level. Adoption of reporting and verification requirements concerning GHG emissions. On December 6, 2007, CARB approved a statewide limit on GHG emissions levels for the year 2020 consistent with the determined 1990 baseline.

January 1, 2009—Adoption of a scoping plan for achieving GHG emission reductions. On October 15, 2008, CARB issued a "discussion draft" Scoping Plan entitled "Climate Change

[7] CARB has not calculated the percent reduction required to achieve AB 32's mandate of returning to 1990 levels of GHG emissions by 2020. The value of 28.4% as the required reduction to achieve 1990 emissions in 2020 is an approximate value. Based on the Scoping Plan estimates and conservative rounding, the value could be 28.5%.

Draft Scoping Plan: A Framework for Change" (Draft Scoping Plan). CARB adopted the Draft Scoping Plan at its December 11, 2008 meeting.

January 1, 2010—Adoption and enforcement of regulations to implement the "discrete" actions.

January 1, 2011—Adoption of GHG emissions limits and reduction measures by regulation.

January 1, 2012—GHG emissions limits and reduction measures adopted in 2011 become enforceable.

Emission reduction measures that cannot be initiated in the 2007-2012 timeframe were considered in the Scoping Plan, which was published by CARB in December 2008. The Scoping Plan is defined by AB 32 as "achieving the maximum technologically feasible and cost-effective reductions in GHG emissions from sources or categories of sources of GHGs by 2020." Scoping Plan measures include direct emission reductions, alternative compliance mechanisms, market-based compliance mechanisms, and potential monetary and non-monetary incentives for sources for categories. By January 1, 2014 and every five years thereafter, CARB will update its Scoping Plan.

As discussed above, CARB developed a list of "discrete early actions" to reduce GHG emissions. Early action measures are those that were developed for implementation by January 2010. CARB approved the expanded list of early action measures on October 25, 2007. The nine discrete early action measures are:

- Increased Methane Capture from Landfills: On June 17, 2010, the regulation to reduce CH_4 emissions from municipal solid waste (MSW) landfills became effective. It requires owners and operators of certain uncontrolled MSW landfills to install gas collection and control systems, and requires existing and newly installed gas collection and control systems to operate in an optimal manner. The regulation is a discrete early action measure to reduce greenhouse gas emissions in California as described in the Global Warming Solutions Act. The Landfill Methane Control Measure incorporates the Intergovernmental Panel on Climate Change (IPCC's) calculation methods, as indicated in Appendix I of the final rule[8]
- Low-carbon fuel standard (LCFS): Requires the implementation of a low carbon fuel standard that reduces the carbon content of fuels used for motor vehicles.
- Reduction of Motor Vehicle A/C Refrigerant Losses: This measure restricts the sale of "do-it-yourself" automotive refrigerants to the public. This will restrict the refrigerant changes to professionals and will, as a result, reduce losses of these high global warming potential (GWP) gases.
- Smartway Truck Efficiency: Requires existing trucks and trailers to be retrofitted with devices that reduce aerodynamic drag, thus resulting in a 1.3 million metric tonne (MMT) reduction of GHG equivalents as well as reducing fuel consumption.

[8] Available at: http://www.arb.ca.gov/regact/2009/landfills09/landfillfinalfro.pdf. Accessed: August 2011.

- Port electrification: This measure will require docked ships to shut off their auxiliary engines by plugging into shoreside electrical outlets. This project will also reduce GHG emissions by 500,000 MT every year.
- Reduction of perfluorocarbons from the semiconductor industry: Alternative chemistry development, emissions abatement, and recovery and recycling will lessen GHG emissions by 500,000 MT annually.
- Reduction of propellants in consumer products: Aerosols, tire inflators, electronics cleaning, and dust removal products all contain propellants that contribute an estimated 300,000 MT of GHG emissions in California every year.
- Tire inflation: CARB will craft regulations requiring tune-up, smog check, and oil change mechanics to ensure proper tire inflation as part of overall service. California will see a 200,000 MT reduction in GHG emissions.
- SF_6 reductions from non-electricity sector: CARB proposes to ban the use of SF_6 from non-essential uses if viable alternatives are available.

As of April 22, 2010, 14 of 30 CARB regulations were approved, including all nine discrete early actions as required by AB 32.[9] It is estimated that the nine proposed discrete early actions will provide approximately 16 MMTCO$_2$e of GHG reductions while the other early actions will provide approximately 26 MMTCO$_2$e of GHG reductions. It also is anticipated that an additional 30 MMTCO$_2$e in reductions will be achieved from the passage of anti-idling measures and AB 1493.[10] The remaining reductions necessary to achieve the goals of AB 32 (*i.e.,* 1990 levels by 2020) are expected to be achieved through CARB's Scoping Plan and other emission reduction efforts by members of the Climate Action Team (CAT).

On August 19, 2011, CARB released a Final Supplement to the AB 32 Scoping Plan Functional Equivalent Document ("FED" or "2011 Scoping Plan") that updated the AB 32 Scoping Plan originally adopted in 2008. In the FED, CARB updated the projected Business-As-Usual (BAU) emissions for 2020 based on updated economic forecasts due to the economic downturn. The CARB 2020 BAU projection for GHG emissions in California was originally estimated to be 596 MMTCO$_2$e. The updated CARB 2020 BAU projection in the FED is approximately 545 MMTCO$_2$e.[11, 12] Considering the updated BAU estimate of 545 MMTCO$_2$e by 2020, CARB now estimates a 21.7 percent reduction below the estimated statewide BAU levels is necessary

[9] CARB. 2010. AB 32 Climate Change Scoping Plan Implementation Update. April 22. http://www.arb.ca.gov/board/books/2010/042110/10-4-1pres.pdf. Accessed: June 2011.

[10] AB 1493 (Pavley) requires a reduction in GHG emissions from passenger vehicles in California. Setting GHG emission standards for California passenger vehicles requires a waiver from the USEPA.

[11] CARB, 2011. Attachment D, Final Supplement to the AB 32 Scoping Plan Functional Equivalent Document. August 19. Available at: http://www.arb.ca.gov/cc/scopingplan/document/final_supplement_to_sp_fed.pdf. Accessed: June 2012.

[12] CARB, 2011. Status of Scoping Plan Measures. Available at: http://www.arb.ca.gov/cc/scopingplan/sp_measures_implementation_timeline.pdf. Accessed: June 2012.

to return to 1990 emission levels (i.e., 427 $MMTCO_2e$) by 2020, instead of the approximate 28.4% BAU reduction previously reported under the AB 32 Scoping Plan (2008).[13]

3.1.2 California Senate Bills 1078, 107, and 2; Renewables Portfolio Standard

Established in 2002 under California Senate Bill 1078 and accelerated in 2006 under California Senate Bill 107, California's RPS requires retail suppliers of electric services to increase procurement from eligible renewable energy resources by at least 1 percent of their retail sales annually, until they reach 20 percent by 2010.

On April 2, 2011, Governor Jerry Brown signed California Senate Bill 2 to increase California's RPS to 33 percent by 2020. This new standard also requires regulated sellers of electricity to procure 25 percent of their energy supply from certified renewable resources by 2016.

3.1.3 Low Carbon Fuel Standard

California Executive Order S-01-07 (January 18, 2007) requires a 10 percent or greater reduction in the average carbon intensity for transportation fuels in California regulated by CARB. CARB identified the LCFS as a Discrete Early Action item under AB 32, and the final resolution (09-31) was issued on April 23, 2009.[14]

[13] Note that CARB also provided an even lower emissions 2020 BAU inventory forecast of approximately 507 MMTCO2e, which took credit for certain GHG reduction measures already in place. If this lower forecast is used, the necessary reduction from BAU is approximately 16%. However, in order to be consistent with the analysis in the 2008 Scoping Plan, which did not take credit for any GHG reduction measures, this analysis uses a comparison to the BAU inventory that only accounted for the economic adjustments to the BAU inventory (i.e., 545 MMTCO2e).

[14] Available at: www.arb.ca.gov/fuels/lcfs/lcfs.htm. Accessed: June 2012.

4 GHG Significance Threshold

The DEIR used consistency with AB 32 as the method of determining whether the Project's impacts were significant. The DEIR compared the Project's emissions as proposed to the Project's emissions if the Project were built using a BAU approach in terms of design, methodology, and technology. If the difference between the Project's emissions as proposed and the Project's emissions under a CARB 2020 BAU scenario is at least the difference that has been determined by CARB as necessary to meet AB 32's goals, then the Project can be determined to be consistent with AB 32 and thus not significant for GHG emissions. Previously, based on state-wide growth projections, CARB indicated that achieving AB 32's goals would require approximately a 28.4% break from a CARB 2020 BAU projection.

This updated Climate Change Technical Report follows the same method of determining significance by analyzing consistency with AB 32 through evaluating the Project's break from a CARB 2020 BAU projection. However, CARB has approved an update to the 2008 AB 32 Scoping Plan (i.e., the FED) as discussed in Section 3. This update included lower state-wide growth projections and, thus, a lower break from CARB 2020 BAU projection that is necessary to achieve AB 32's goals. Based on current state-wide growth projections, CARB has indicated that achieving AB 32's goals would require approximately a 21.7% break from the CARB 2020 BAU projection. To be consistent with updated regulations and methodologies, this updated Climate Change Technical Report uses the more recently approved value from CARB (i.e., 21.7%) to determine significance of the Project's GHG emissions.

5 Emission Estimation Methods

This section describes the methodology that was used to develop the GHG emissions inventories for construction and operational emissions associated with the Project. Legislation and rules regarding climate change, as well as the scientific understanding of the extent to which different activities emit GHGs, continue to evolve. As such, the inventories in this report are a reflection of the guidance and knowledge currently available.

ENVIRON primarily utilized CalEEMod version 2011.1.1[15] to assist in quantifying the GHG emissions in the inventories presented in this report for the Project.[16] CalEEMod is a statewide program designed to calculate both criteria and GHG emissions from development projects in California. This model was developed under the auspices of the SCAQMD and received input from other California air districts. CalEEMod utilizes widely accepted models for emission estimates combined with appropriate default data that can be used if site-specific information is not available. These models and default estimates use sources such as the United States Environmental Protection Agency (USEPA) AP-42 emission factors,[17] CARB's on-road and off-road equipment emission models such as the EMission FACtor model (EMFAC) and the Offroad Emissions Inventory Program model (OFFROAD), and studies commissioned by California agencies such as the California Energy Commission (CEC) and CalRecycle.

OFFROAD is an emissions factor model used to calculate emission rates from off-road mobile sources (e.g., construction equipment, agricultural equipment).[18] EMFAC is an emissions factor model used to calculate emissions rates from on-road vehicles (e.g. passenger vehicles, haul trucks).[19] The off-road diesel emission factors used by CalEEMod are based on the CARB OFFROAD2007 program.[20]

ENVIRON used LA South Coast County CalEEMod defaults in the model runs unless otherwise noted in the methodology descriptions below. Electrical power will be supplied to the Project Site by both Los Angeles Department of Water and Power (LADWP) for the City areas and Southern California Edison (SCE) for the County areas. Accordingly, indirect GHG emissions from electricity usage are calculated using the LADWP's and SCE's carbon-intensity factors in

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[15] SCAQMD, 2011, California Emissions Estimator Model. Available at: http://www.caleemod.com/, Accessed: December 2011.

[16] The 2010 GHG Technical Report used the CTG Sustainable Communities Model (SCM)® methodology to estimate GHG emissions from the Project. While this model was accepted for use by the California Attorney General at the time of the analysis, technological advances since 2010 have led to other approved models for GHG analyses. Specifically, the SCAQMD recommends the use of CalEEMod for all CEQA projects for which the SCAQMD is the lead agency or commenting agency. As a result, this update used CalEEMod for operational emissions.

[17] The USEPA maintains a compilation of Air Pollutant Emission Factors and process information for several air pollution source categories. The data is based on source test data, material balance studies, and engineering estimates. Available at: http://epa.gov/ttnchie1/ap42/, Accessed: December 2011

[18] SCAQMD, 1993. Off Road Mobile Source Emission factors. Available at:http://www.aqmd.gov/ceqa/handbook/offroad/offroad.html, Accessed December 2011.

[19] CARB, 2010. EMFAC 2007 Release. Available at: http://arb.ca.gov/msei/onroad/latest_version.htm, December 2011.

[20] Correction factor of 33% reduction in emission factors as suggested by CARB in 2010 for programs like CalEEMod using OFFROAD 2007 was not considered in this Project analysis. While CARB finds that it is justifiable to include this correction factor, the analysis conservatively evaluates the Project without this reduction.

CalEEMod based on the 2008 Power/Utility Reporting Protocol. Details regarding the specific methodologies used by CalEEMod can be found in the CalEEMod User's Guide and associated appendices.[21] The CalEEMod output files are provided for reference in Appendix A to this report, which includes separate runs for the LADWP and SCE jurisdictions.

5.1 Greenhouse Gas Emission Estimation – Construction

GHG emissions from construction of the Project were calculated as described in the Air Quality Technical Report and corresponding appendices.[22] They are also reported in Section IV.O Climate Change, Table 204 of the DEIR. Due to the complexity of the potential construction schedule for the Project, the construction assumptions were not re-modeled in CalEEMod. However, the construction emissions previously estimated were completed using the same methodology as that used in CalEEMod. The emission estimates are based on emission factors as provided by the SCAQMD and USEPA. On-Road emission factors were obtained from the SCAQMD[23] and are based on an EMFAC2007 model run that is specific to the South Coast Air Basin. Off-Road emission factors were also obtained from the SCAQMD[24] and are based on an OFFROAD2007 model run. The construction emissions for the Project are shown in Table 2.

5.2 Greenhouse Gas Emission Estimation – Operations

Five sub-categories of GHG emissions are included: building energy use; mobile sources; solid waste; water and wastewater; and vegetation. The sections below describe specific sources of GHGs during operation of the Project. A 30-year annualized construction value is added to operational emissions, as discussed in Section 5.1. Use of a 30-year project life is based on draft guidance provided by SCAQMD. The total emissions are compared to the significance threshold described in Section 4. The subsections below describe the methodology used in developing the GHG emission inventories and, in particular, any project specific assumptions. The methodology and calculations are more fully described in CalEEMod User's Guide Appendix A. The CalEEMod output files are provided for reference in Appendix A to this report.

5.2.1 Building Energy Usage

For the Project, the energy intensity value was estimated based on site specific data and CalEEMod default energy intensity values specific to land use were used in the analysis.[25] The Project was assumed to exceed Title 24 (2005) standards by 15%. The program uses the California Commercial End Use Survey (CEUS)[26] database to develop energy intensity values (electricity or natural gas usage per square feet per year) for non-residential buildings and the

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[21] SCAQMD, 2011, California Emissions Estimator Model User's Guide. Version 2011.1.1. February. Available at: http://www.caleemod.com/.Accessed: April 2012.

[22] ENVIRON, 2010. Air Quality Technical Report, Appendix March. (Appendix J of the DEIR)

[23] SCAQMD. http://www.aqmd.gov/CEQA/handbook/onroad/onroad.html.

[24] SCAQMD. http://www.aqmd.gov/ceqa/handbook/offroad/offroad.html.

[25] CalEEMod bases values for energy intensity on CEUS and RASS whereas the previous analysis used CTG's SCM, which bases energy intensity values on DEER (Database for Energy Efficient Resources). Because DEER, CEUS, and RASS are based on different data, they result in different energy intensity values for the same land use.

[26] Itron, 2006. California Commercial End Use Survey. CEC-400-2006-005. March. Available at: http://www.energy.ca.gov/ceus/. Accessed: December 2011.

Residential Appliance Saturation Survey (RASS) database to develop energy intensity values for residential buildings. ENVIRON used Project-specific information for energy usage for several land uses, including infrastructure in the Mixed-Use Residential District (parking lots, parking structures, paseo paths, and roadways) as shown in Table 3a. The energy use related to pools and spas in the Mixed-Use Residential District is also estimated as shown in Table 3b. CalEEMod converts the resulting energy intensity quantities to GHG emissions by multiplying the energy intensity by the appropriate emission factors obtained by incorporating information on local electricity production. ENVIRON used both LADWP and SCE as the utility providers for the Project consistent with the specific buildings areas expected in each jurisdiction based on the Project description. It is assumed that LADWP and SCE will meet the 33% RPS requirements and that the Mixed-Use Residential District would obtain an additional 20% green power. This calculation of the LADWP and SCE emission factors are shown in Table 4. The inventory also includes an estimate for the growth of the existing liquid fuel, natural gas, and electricity uses. These emissions were estimated to increase in proportion to the square footage increase of Alternative 10.

The CARB 2020 BAU scenario assumes Title 24 (2005) standards to estimate the energy intensity values and default emission factors for each utility for the local electricity production.

5.2.2 Mobile Sources

CalEEMod calculates the emissions associated with on-road mobile sources. These are associated with workers, customers, and delivery vehicles visiting the Project Site. Project-specific traffic information was obtained from the traffic consultant.[27] The Project assumptions include the Transportation Demand Management (TDM) trip reductions,[28] implementation of Pavley[29] and LCFS regulations which reduce the emissions from mobile sources, and reductions in trip lengths for residential home-based work trips due to the development of the Project as an infill residential development near commercial centers and transportation hubs to reduce vehicle miles traveled.

Consistent with the AB 32 Scoping Plan, the CARB 2020 BAU scenario assumes that the Pavley and LCFS regulations are not in place, that the Project is not an infill development and the Project has not incorporated the various TDM features. The CARB 2020 BAU scenario assumes default residential trip lengths for the region. The trip characteristics for the Project and CARB 2020 BAU scenario are shown in Table 5.

5.2.3 Solid Waste

GHG emissions from solid waste disposal were calculated using Project-specific waste generation information as provided in the DEIR and assuming waste is sent to a landfill with landfill gas capture flaring. Defaults from CalEEMod were used for other assumptions

[27] Gibson Transportation Consulting, Inc. Table 14 and Table 20 of Appendix E of the DEIR.

[28] The TDM program includes trip reductions due to measures such as increases in transit, transit incentives, carpooling, bicycle-oriented infrastructure, etc.

[29] As discussed in the CTG Energetics Global Warming Technical Report, California Assembly Bill 1493 ("the Pavley Standard"), requires the development and adoption of regulations to achieve "the maximum feasible reduction of greenhouse gases" emitted by noncommercial passenger vehicles, light-duty trucks, and other vehicles used primarily for personal transportation in the State.

(e.g., method of disposal); these defaults are based on data from CalRecycle[30] and CARB Local Government Operations Protocol for degradation of solid waste material. CalEEMod captures all of the future GHG emissions resulting from the waste degradation in the landfill and attributes it to the year it was placed into the landfill. The analysis herein assumes the Project is diverting 65% of the non-hazardous operational waste, but does not quantify the Project's additional construction and demolition debris waste diversion commitment. The CARB 2020 BAU scenario assumed 49% of the waste would be diverted based on the LA regional solid waste diversion rate.[31] The solid waste GHG emissions and waste diversion assumptions are shown in Tables 6a and 6b.

5.2.4 Water and Wastewater

Water use and wastewater generation by a project will result in indirect GHG emissions. These emissions are a result of the energy used to supply, distribute, and treat the water and wastewater. ENVIRON used Project-specific information for water usage as provided in the DEIR. The Project committed to water conservation features that were estimated to reduce the domestic, potable water usage by 20%. CalEEMod allows the user to enter an overall water reduction value. The domestic, potable water was 60% of the total water usage, so an overall reduction factor of 12% (i.e., 20% reduction of 60% of the total water) was used in CalEEMod. CalEEMod defaults were otherwise used to estimate the GHG emissions associated with water and wastewater.

The CARB 2020 BAU scenario assumed zero water reduction. The water and wastewater assumptions are shown in Tables 7a and 7b.

5.2.5 Vegetation Changes

The permanent removal of existing vegetation can contribute to net GHG increases by reducing existing carbon sequestration capacity. When vegetation is removed, it may undergo biodegradation or it may be combusted. Either pathway results in the carbon (C) present in the plants being combined with oxygen (O_2) to form CO_2. The addition of vegetation can contribute to net GHG decreases by increasing carbon sequestration capacity. The Project involves both the removal and planting of trees.

CalEEMod calculates GHG emissions due to vegetation changes by accepting inputs regarding the number and species of trees planted. The model then calculates net sequestration changes by assuming a 20-year active growth period and carbon sequestration rate specific to the species selected.

Because the Project involves both the removal and planting of trees, a net weighted number of trees was calculated for input into CalEEMod. This methodology parallels that used in the DEIR. The net weighted number was calculated by multiplying the number of trees by the percent to full growth. The result was a negative number as shown in Table 8, which suggests that the Project reduces the overall mass of trees compared to what currently exists. Although

[30] CalRecycle, 2011. Available at: http://www.calrecycle.ca.gov/, Accessed: December 2011.

[31] CTG, Global Warming Technical Report. March 2010. Pg 24. (Appendix Q of the DEIR)

the Project will plant more trees than currently exists, the trees being removed are closer to their full growth than the new trees will be in the 20-year active growth period assumed by CalEEMod. The weighted number was entered into CalEEMod and the result was assumed to be a positive emission, indicating that the Project reduces the sequestration capacity of the site.

6 Results

We compare the Project GHG emissions inventory to the GHG emissions that would occur from a development that would be built without the project design features and energy reduction commitments made by the Project, and without the regulations that have been promulgated to comply with AB 32 (i.e., the CARB 2020 Business-As-Usual Scenario). The CARB 2020 BAU scenario represents the GHG emission inventory if projects continued to be built according to standards at the time AB 32 was enacted, and was the scenario that the CARB used to estimate the percent reduction in GHG emissions required to return to 1990 levels by 2020.

The Project is consistent with AB 32. Table 9a and Table 9b show total GHG emissions for construction and operation of the Project and the CARB 2020 BAU scenario. The Project GHG emissions inventory is 59,715 MT CO_2e per year. The CARB 2020 BAU GHG emissions inventory is 89,890 MT CO_2e per year. The Project represents a 33.6 percent reduction from a CARB 2020 BAU scenario taking into consideration the Project's sustainability commitments (e.g., 20% green power commitment for the Mixed-Use Residential District, buildings that are 15% better than Title 24 (2005) standards) and changes in emission factors due to implementation of the Renewables Portfolio Standard of 33 percent, the Pavley regulation mandating higher fuel efficiency standards for light-duty vehicles, and the LCFS.

Tables

Table 1. Comparison of Net New Square Footage

	Proposed Project (Annexation Scenario)	No Annexation Scenario
	City	
Amphitheater	-	-2,500
Entertainment Retail	-	17,400
Entertainment	-42,240	67,100
Office	-	24,400
Studio	48,020	77,220
Studio Office	222,552	244,430
Mixed-Use Residential Area Commercial	180,000	72,200
Commercial Total	**408,332**	**500,250**
Hotel	**-**	**500 (rooms)**
Residential	**2,937 (units)**	**1,178 (units)**
	County	
Amphitheater	-50,600	-48,100
Entertainment Retail	39,216	21,816
Entertainment	187,895	78,555
Office	495,406	471,006
Studio	259,929	230,729
Studio Office	214,774	192,896
Mixed-Use Residential Area Commercial	-	107,800
Commercial Total	**1,146,620**	**1,054,702**
Hotel	**500 (rooms)**	**-**
Residential	**-**	**1,759 (units)**

Table 2. Construction Emissions Summary

Source	Total Emissions ($MT\ CO_2e$)	Annualized Emissions ($MT\ CO_2e/yr$)
Water (construction-related)	307	10
Construction	180,055	6,002
Total	180,362	6,012

Ref: Section IV.O Climate Change, Table 204 of the DEIR.

Table 3a. Infrastructure Energy Usage Assumptions

Land Use	Energy Usage (kWh/yr)[1]	CalEEMod Input (kWh/sq ft/yr)
Business-As-Usual Scenario[2]		
Parking - Surface Parking	498,304	0.19
Parking - Subterranean Garage	13,494,658	9.49
Roadways and Paseo Path (Total)	256,318	0.39
Roadways	150,063	
Paseo Path	106,255	
Project		
Parking - Surface Parking[1,3]	253,710	0.10
Parking - Subterranean Garage[1,4]	9,541,750	6.71
Roadways and Paseo Path (Total)	250,254	0.39
Roadways[1,5]	143,999	
Paseo Path[1]	106,255	

Notes

1. Data as relied upon by CTG in Appendix Q of the DEIR.

2. The Business-As-Usual Scenario represents the GHG emissions that would occur from a development that would be built without the project design features and energy reduction commitments made by the Project, and without the regulations that have been promulgated to comply with AB 32.

3. Reduced energy usage due to basic metal halide lighting.

4. Reduced energy usage due to demand control ventilation.

5. Reduced energy usage due to induction lighting.

Table 3b. Pools and Spas Natural Gas Usage Assumptions

Land Use	Energy Usage (therms/yr)[1]	Energy Usage (BTU/yr)[1]	CalEEMod Input (kBTU/sq ft/yr)
Business-As-Usual Scenario[2]			
Pools	103,692	10,369,200,000	13,685
Spas	48,624	4,862,400,000	
Project[3]			
Pools	72,108	7,210,800,000	9,885
Spas	37,920	3,792,000,000	

Notes

1. Data as relied upon by CTG in Appendix Q of the DEIR.

2. The Business-As-Usual Scenario represents the GHG emissions that would occur from a development that would be built without the project design features and energy reduction commitments made by the Project, and without the regulations that have been promulgated to comply with AB 32.

3. Reduced energy usage due to use of solar covers and lower set points.

Table 4. Utility Carbon Intensity Factors

	LADWP	SCE
% of Total Energy From Renewables[1,2]	13%	13%
% of Total Energy From Non-Renewables	87%	87%
Total Energy Delivery (MWh)[3,4]	29,141,703	83,958,770
from renewables (MWh)	3,671,855	11,234,288
from non-renewables (MWh)	25,469,848	72,724,482
CO_2 Emissions per Total Energy Delivered (lb CO_2/MWh)	1228	631
Total CO_2 Emissions (MT CO_2)[5,6]	16,230,815	24,026,108
CO_2 Emissions per Total Non-Renewable Energy (lb CO_2/MWh)[7]	1405	728
Estimated Emission Factors for Total Energy Delivered[8]		
2010 RPS (20%) (lb CO_2/MWh)	1123.93	583
2020 RPS (33%) (lb CO_2/MWh)	941	488

Notes

1. The renewable energy portfolio for LADWP. The total energy is based on information available at: http://www.ladwpnews.com/go/doc/1475/161230/

2. The renewable energy portfolio for Southern California Edison, the power utility that is most likely to provide power to the Project. The renewable energy distribution is based on the 2008 data available at http://www.sce.com/PowerandEnvironment/renewables/

3. Total energy value reported for 2007 by LADWP in California Climate Action Registry. Available at: http://www.climateregistry.org/CarrotDocs/16/2007/LADWP_2007_PUP_Report.pdf

4. Total energy value reported for 2007 by Southern California Edison in california Climate Action Registry. Available at: http://www.climateregistry.org/CarrotDocs/26/2007/SCEPUP07r3.xls

5. The amount of CO_2 emissions is provided in LADWP's Power/Utility Protocol (PUP) report for 2007 available at: http://www.climateregistry.org/CarrotDocs/16/2007/LADWP_2007_PUP_Report.pdf

6. The amount of CO_2 emissions is provided in Southern California Edison's Power/Utility Protocol (PUP) report for 2007 available at: http://www.climateregistry.org/CarrotDocs/26/2007/SCEUPU07r3.xls

7. The emissions metric presented here is calculated based on the total CO_2 emissions divided by the energy delivered from non-renewable sources.

8. The emission factors for total energy delivered are estimated by multiplying the percentage of energy delivered from non-renewable energy by the CO_2 emissions per total non-renewable energy metric calculated above. Two emission factors are presented here for the current 20% RPS goal for 2010 and the presumed 33% RPS for 2020. The estimate provided here and the 2007 PUP report issued by Southern California Edison assume that renewable energy sources do not result in any CO_2 emissions. This is not necessarily true for biogas- and biomass-sourced energy but some consider these sources to be "carbon neutral."

Table 5. Traffic/Transportation Assumptions

Land Use	Proposed Project	Metric	Project: growth trips/day/size metric[1,2]	Project: Trip Length (miles)	BAU: growth trips/day/size metric[1,2]	BAU: Trip Length (miles)
SCE Jurisdiction						
Studio, Business, and Entertainment						
Studio	307.949	1000 sq ft	2.31	Defaults	2.99	Defaults
Studio Office						
Studio Office (not "child care" land use)	422.326	1000 sq ft	1.29	Defaults	1.67	Defaults
Child Care	15.000	1000 sq ft	0.20	Defaults	0.25	Defaults
Office	495.406	1000 sq ft	1.25	Defaults	1.63	Defaults
Total General Office Building[3]			*1.27*		*1.64*	
Entertainment	145.655	1000 sq ft	0.72	Defaults	0.93	Defaults
Entertainment Retail	39.216	1000 sq ft	0.80	Defaults	1.04	Defaults
Amphitheatre	0	acre	0.00		0.00	
Hotel	500	Room	1.31	Defaults	1.69	Defaults
LADWP Jurisdiction						
Neighborhood Retail						
Retail	69.000	1000 sq ft	2.17	Defaults	2.82	Defaults
Restaurant	46.000	1000 sq ft	2.17	Defaults	2.82	Defaults
Community Serving Facilities	65.000	1000 sq ft	2.17	Defaults	2.82	Defaults
Mixed Use Residential (LADWP)						
Housing						
Condos	2,257	dwelling unit	4.67	10.3 for H-W defaults for other	6.06	Defaults
Apartments: 1-bedroom	340	dwelling unit	4.67	10.3 for H-W defaults for other	6.06	Defaults
Apartments: 2-bedroom	340	dwelling unit	4.67	10.3 for H-W defaults for other	6.06	Defaults

Notes

1. Growth trips are calculated based on information provided by the traffic consultant (Gibson Transportation Consulting, Inc.). Ref: Table 14 and Table 20 of Appendix E of the DEIR.

2. The analysis assumes that certain trips to and from the Project are not new trips in the context of Global Climate Change and would occur even if the Project is not implemented. Specifically, all residential trips and all commercial non-work trips were derived using default percent trip purpose values from CalEEMod and are included in the GHG inventory.

3. Total general office building is the combination of Studio Office (not "child care" land use) and Office.

Table 6a. Solid Waste Generation

Land Use	Solid Waste Generated[1,2] (ton/day)	Solid Waste Generated[2,3] (ton/year)
SCE Jurisdiction		
Studio, Business, and Entertainment		
Studio	2.41	880
Studio Office		
Studio Office (not "child care" land use)	1.17	427
Child Care	0.03	11
Office	1.35	493
Total General Office Building[4]	*2.52*	*920*
Entertainment	2.67	975
Entertainment Retail	0.92	336
Amphitheatre	--	--
Hotel	3.51	1,281
LADWP Jurisdiction		
Neighborhood Retail[5]		
Retail[5]	1.64	599
Restaurant[5]	--	--
Community Serving Facilities	0.49	179
Mixed Use Residential (LADWP)		
Housing[6]		
Condos[6]	7.48	2,730
Apartments: 1-bedroom[6]	--	--
Apartments: 2-bedroom[6]	--	--

Notes
1. CTG Global Warming Technical Report. Appendix A. pg. 24 (Appendix A is in Appendix Q).
2. Solid waste generated is the same for the Project and BAU scenarios.
3. Annual solid waste generated is calculated by assuming the daily solid waste generated occurs 365 days of the year.
4. Total general office building is the sum of Studio Office (not "child care" land use) and Office.
5. Total waste generated for neighborhood retail was estimated by CTG. All waste generated was assigned to the retail category in CalEEMod (note that the assignment between retail or restaurant will not affect overall emissions due to waste generated).
6. Total waste generated for housing was provided by CTG. All waste generated was assigned to the condos category in CalEEMod (note that the assignment among condos, apartments: 1-bedroom, or apartments: 2-bedroom will not affect overall emissions due to waste generated).

6b. Waste Diversion

	Project (% Diversion)	BAU (% Diversion)
Assumption	Divert 65% of solid waste	Divert 49% of solid waste

Note: Project Design Feature targets a higher waste diversion rate.

Table 7a. Water Usage Assumptions

Land Use	Project Water Demand[1] (gal/yr)	BAU Water Demand[1] (gal/yr)
SCE Jurisdiction		
Studio, Business, and Entertainment		
Studio	7,913,083	8,992,140
Studio Office		
Studio Office (not "child care" land use)	24,995,142	28,403,570
Child Care	128,480	146,000
Office	28,642,368	32,548,145
Total General Office Building[2]	*53,637,510*	*60,951,715*
Entertainment	8,421,222	9,569,570
Entertainment Retail	5,139,200	5,840,000
Amphitheatre	0	0
Hotel	41,756,000	47,450,000
Irrigation[3]	38,298,720	38,298,720
LADWP Jurisdiction		
Neighborhood Retail[4]		
Retail[4]	15,070,704	17,125,800
Restaurant[4]	--	--
Community Serving Facilities	8,518,224	9,679,800
Irrigation[3]	--	--
Mixed Use Residential (LADWP)		
Housing[5]		
Condos[5]	150,938,304	171,520,800
Apartments: 1-bedroom[5]	--	--
Apartments: 2-bedroom[5]	--	--
Irrigation[3]	41,816,225	41,816,225

Notes
1. CTG Global Warming Technical Report. Appendix A. pg. 20-21 (Appendix A is in Appendix Q).
2. Total general office building is the sum of Studio Office (not "child care" land use) and Office.
3. This analysis conservatively assumes irrigation water is potable water and does not take credit for potential use of recalimed water. The irrigation water under LADWP jurisdiction is included as part of the Mixed-use residential CalEEMod run even though some irrigation would also be used related to the other uses listed.
4. Total water demand for neighborhood retail was provided. All water demand was assigned to the retail category in CalEEMod (note that the assignment between retail or restaurant will not affect overall emissions due to water use).
5. Total water demand for housing was provided. All water demand was assigned to the condos category in CalEEMod (note that the assignment among condos, apartments: 1-bedroom, or apartments: 2-bedroom will not affect overall emissions due to water use).

7b. Water Project Design Feature Assumptions

	Project (% Reduction)	BAU (% Reduction)
Assumption	Reduce potable water consumption by 20% for 60% of non-landscaping related, indoor water uses. Assume this results in an overall reduction of 12%.	0%
Note: Project Design Feature targets reduced potable water consumption.		

Table 8. Vegetation Change Evaluation

Category	Coast Live Oak (Growth A)	So Cal Black Walnut	California Sycamore	Coast Live Oak (Growth B)	Coast Live Oak (Growth C)
Existing					
Number of trees[1]	317	75	34	76	201
Growth (% to full population maturity)[1]	100%	73%	75%	81%	85%
Weighted number of trees[2]	317	55	26	62	171
Project					
Number of trees[1]	634	150	68	152	402
Growth (% to full population maturity)[1]	37%	37%	37%	37%	37%
Weighted number of trees[2]	234.58	55.5	25.16	56.24	148.74
Increment					
Weighted number of trees[3]	-82.42	0.75	-0.34	-5.32	-22.11
				TOTAL (weighted number of trees)[4]	-109.44

Notes

1. CTG Global Warming Technical Report Appendix A. Page 29 (Appendix A is in Appendix Q).

2. The weighted number of trees is calculated as follows: weighted = number of trees * (growth % to full maturity). Note that mortality is not taken into account because CalEEMod accounts for it.

3. The incremental change due to the project.

4. The total number of weighted trees is entered into CalEEMod as a positive number and CalEEMod estimates the resulting GHG emissions change. Because the number is negative, indicating that there is less sequestration potential after Project implementation, the result from CalEEMod is assumed to be a net increase in emissions from the Project.

Table 9a. Project and CARB 2020 BAU GHG inventories (detailed)

	Project (metric tonnes)	BAU (metric tonnes)	% change from BAU
Front Lot - Combined	15,255	18,533	-18%
Direct Combustion[1]	4,978	4,978	0%
Natural Gas	2,744	2,744	0%
Other Liquid Fuel	2,234	2,234	0%
Process Loads	4,904	6,332	-23%
Studio	1,215	1,598	-24%
Studio Office	--	--	--
Studio Office (not "child care" land use)	1,591	2,167	-27%
Child Care	31	40	-24%
Office	1,871	2,543	-26%
Entertainment	530	689	-23%
Entertainment Retail	135	186	-27%
Amphitheatre[2]	0	0	--
Back Lot	8,441	12,357	-32%
Condos	6,292	9,107	-31%
Apartments: 1-bedroom	625	953	-34%
Apartments: 2-bedroom	625	953	-34%
Back Lot - Other	--	--	--
Community Serving Facilities	397	527	-25%
Swimming Pool	502	816	-38%
Front Lot - Hotel	1,403	1,817	-23%
Back Lot - Neighborhood Retail	1,939	2,460	-21%
Retail	456	629	-27%
Restaurant	1,483	1,831	-19%
Infrastructure	2,926	8,022	-64%
Subterranean Garage	2,778	7,600	-63%
Surface Parking	74	280	-73%
Paseo path and roadways	74	142	-48%
Water	1,869	2,640	-29%
Solid Waste	1,260	1,835	-31%
Transportation	20,530	36,134	-43%
Subtotal	53,623	83,798	-36%
Construction[3]	6,012	6,012	--
Trees[4]	80	80	--
Total	59,715	89,890	-33.6%

Notes

1. Direct combustion data were obtained from NBCU data for 2006. Direct combustion emissions were calculated by applying a growth factor to reflect Project development and subtracting the baseline (i.e., 2006) to represent incremental emissions.

2. Amphitheatre emissions are conservatively assumed to be zero although there is an area reduction (i.e., resulting in fewer emissions).

3. Construction emissions were obtained from Section IV.O Climate Change, Table 204 and the Air Quality Technical Report (Appendix J, DEIR).

4. Positive emissions for Trees represent a loss of sequestration ability.

Table 9b. Project and CARB 2020 BAU GHG inventories

	Project (metric tonnes)	BAU (metric tonnes)	% change from BAU
Front Lot - Combined	15,255	18,533	-18%
Back Lot	8,441	12,357	-32%
Front Lot - Hotel	1,403	1,817	-23%
Back Lot - Neighborhood Retail	1,939	2,460	-21%
Infrastructure	2,926	8,022	-64%
Water	1,869	2,640	-29%
Solid Waste	1,260	1,835	-31%
Transportation	20,530	36,134	-43%
Subtotal	53,623	83,798	-36%
Construction[1]	6,012	6,012	--
Trees[2]	80	80	--
Total	59,715	89,890	-33.6%

Notes

1. Construction emissions were obtained from Section IV.O Climate Change, Table 204 and the Air Quality Technical Report (Appendix J, DEIR).
2. Positive emissions for Trees represent a loss of sequestration ability.

Appendix A

CalEEMod Output File

NBCU BAU - SCE growth only

Los Angeles-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
General Office Building	422.33	1000sqft
General Office Building	495.41	1000sqft
Day-Care Center	15	1000sqft
General Light Industry	145.66	1000sqft
Refrigerated Warehouse-No Rail	307.95	1000sqft
Hotel	500	Room
Regional Shopping Center	39.22	1000sqft

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Utility Company**	Southern California Edison
Climate Zone	12	**Precipitation Freq (Days)**	33		

1.3 User Entered Comments

Project Characteristics -

Land Use - Based on CTG report.

Vehicle Trips - trip rates based on the traffic study

Vechicle Emission Factors - EFs changed to not account for Pavley (Appendix D)

Vechicle Emission Factors - EFs changed to not account for Pavley (Appendix D)

Vechicle Emission Factors - EFs changed to not account for Pavley (Appendix D)

Woodstoves -

Consumer Products - CTG did not estimate area sources.

Area Coating - CTG did not estimate area sources.

Landscape Equipment -

Energy Use - Historical data selected to reflect use of Title 24-2005.

Water And Wastewater - Water set to reflect DEIR.
Electricity intensity obtained from Appendix Q. Page 23.
Solid Waste - Waste generation set to reflect DEIR.

Land Use Change -

Sequestration - Weighted number of trees = number of trees * % to full maturity

Energy Mitigation -

Water Mitigation - No water mitigation.

Waste Mitigation -

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area											0.00	0.00	0.00	0.00	0.00	0.00
Energy											0.00	8,983.08	8,983.08	0.37	0.16	9,039.12
Mobile											0.00	4,093.42	4,093.42	0.13	0.00	4,096.12
Waste											893.77	0.00	893.77	52.82	0.00	2,002.99
Water											0.00	628.79	628.79	4.09	0.11	749.15
Total											893.77	13,705.29	14,599.06	57.41	0.27	15,887.38

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area											0.00	0.00	0.00	0.00	0.00	0.00
Energy											0.00	8,983.08	8,983.08	0.37	0.16	9,039.12
Mobile											0.00	4,093.42	4,093.42	0.13	0.00	4,096.12
Waste											455.82	0.00	455.82	26.94	0.00	1,021.53
Water											0.00	628.79	628.79	4.09	0.11	749.15
Total											455.82	13,705.29	14,161.11	31.53	0.27	14,905.92

2.3 Vegetation

Vegetation

	ROG	NOx	CO	SO2	CO2e
Category	tons				MT
New Trees					80.01
Total					80.01

3.0 Construction Detail

3.1 Mitigation Measures Construction

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated											0.00	4,093.42	4,093.42	0.13	0.00	4,096.12
Unmitigated											0.00	4,093.42	4,093.42	0.13	0.00	4,096.12
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Day-Care Center	3.75	3.75	3.75	4,312	4,312
General Light Industry	135.46	135.46	135.46	340,403	340,403
General Office Building	692.62	692.62	692.62	1,526,173	1,526,173
General Office Building	812.47	812.47	812.47	1,790,262	1,790,262
Hotel	845.00	845.00	845.00	1,537,592	1,537,592
Refrigerated Warehouse-No Rail	920.77	920.77	920.77	2,313,780	2,313,780
Regional Shopping Center	40.79	40.79	40.79	69,106	69,106
Total	3,450.87	3,450.87	3,450.87	7,581,629	7,581,629

4.3 Trip Type Information

Land Use	Miles			Trip %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
Day-Care Center	8.90	13.30	7.40	0.00	0.00	100.00
General Light Industry	8.90	13.30	7.40	0.00	0.00	100.00
General Office Building	8.90	13.30	7.40	0.00	0.00	100.00
General Office Building	8.90	13.30	7.40	0.00	0.00	100.00
Hotel	8.90	13.30	7.40	0.00	0.00	100.00
Refrigerated Warehouse-No Rail	8.90	13.30	7.40	0.00	0.00	100.00
Regional Shopping Center	8.90	13.30	7.40	0.00	0.00	100.00

5.0 Energy Detail

5.1 Mitigation Measures Energy

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Electricity Mitigated											0.00	7,566.72	7,566.72	0.34	0.13	7,614.14
Electricity Unmitigated											0.00	7,566.72	7,566.72	0.34	0.13	7,614.14
NaturalGas Mitigated											0.00	1,416.36	1,416.36	0.03	0.03	1,424.98
NaturalGas Unmitigated											0.00	1,416.36	1,416.36	0.03	0.03	1,424.98
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

5.2 Energy by Land Use - NaturalGas

Unmitigated

Land Use	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	kBTU	tons/yr										MT/yr					
Day-Care Center	176850											0.00	9.44	9.44	0.00	0.00	9.49
General Light Industry	2.88397e+006											0.00	153.90	153.90	0.00	0.00	154.84
General Office Building	5.25374e+006											0.00	280.36	280.36	0.01	0.01	282.07
General Office Building	6.16285e+006											0.00	328.87	328.87	0.01	0.01	330.87
Hotel	1.16325e+007											0.00	620.75	620.75	0.01	0.01	624.53
Refrigerated Warehouse-No Rail	360300											0.00	19.23	19.23	0.00	0.00	19.34
Regional Shopping Center	71373.1											0.00	3.81	3.81	0.00	0.00	3.83
Total												0.00	1,416.36	1,416.36	0.03	0.03	1,424.97

Mitigated

Land Use	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	kBTU	tons/yr										MT/yr					
Day-Care Center	176850											0.00	9.44	9.44	0.00	0.00	9.49
General Light Industry	2.88397e+006											0.00	153.90	153.90	0.00	0.00	154.84
General Office Building	5.25374e+006											0.00	280.36	280.36	0.01	0.01	282.07

General Office Building	6.16285e+006											0.00	328.87	328.87	0.01	0.01	330.87
Hotel	1.16325e+007											0.00	620.75	620.75	0.01	0.01	624.53
Refrigerated Warehouse-No Rail	360300											0.00	19.23	19.23	0.00	0.00	19.34
Regional Shopping Center	71373.1											0.00	3.81	3.81	0.00	0.00	3.83
Total												0.00	1,416.36	1,416.36	0.03	0.03	1,424.97

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	kWh	tons/yr				MT/yr			
Day-Care Center	106200					30.89	0.00	0.00	31.08
General Light Industry	1.82651e+006					531.28	0.02	0.01	534.61
General Office Building	6.43625e+006					1,872.12	0.08	0.03	1,883.85
General Office Building	7.54999e+006					2,196.07	0.10	0.04	2,209.83
Hotel	4.077e+006					1,185.88	0.05	0.02	1,193.31
Refrigerated Warehouse-No Rail	5.39219e+006					1,568.43	0.07	0.03	1,578.26
Regional Shopping Center	625887					182.05	0.01	0.00	183.19
Total						7,566.72	0.33	0.13	7,614.13

Mitigated

	Electricity Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	kWh	tons/yr				MT/yr			
Day-Care Center	106200					30.89	0.00	0.00	31.08
General Light Industry	1.82651e+006					531.28	0.02	0.01	534.61
General Office Building	6.43625e+006					1,872.12	0.08	0.03	1,883.85
General Office Building	7.54999e+006					2,196.07	0.10	0.04	2,209.83
Hotel	4.077e+006					1,185.88	0.05	0.02	1,193.31
Refrigerated Warehouse-No Rail	5.39219e+006					1,568.43	0.07	0.03	1,578.26
Regional Shopping Center	625887					182.05	0.01	0.00	183.19
Total						7,566.72	0.33	0.13	7,614.13

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated											0.00	0.00	0.00	0.00	0.00	0.00
Unmitigated											0.00	0.00	0.00	0.00	0.00	0.00
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating											0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products											0.00	0.00	0.00	0.00	0.00	0.00
Landscaping											0.00	0.00	0.00	0.00	0.00	0.00

Total											0.00	0.00	0.00	0.00	0.00	0.00

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating											0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products											0.00	0.00	0.00	0.00	0.00	0.00
Landscaping											0.00	0.00	0.00	0.00	0.00	0.00
Total											0.00	0.00	0.00	0.00	0.00	0.00

7.0 Water Detail

7.1 Mitigation Measures Water

	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr				MT/yr			
Mitigated					628.79	4.09	0.11	749.15
Unmitigated					628.79	4.09	0.11	749.15
Total	NA	NA	NA	NA	NA	NA	NA	NA

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	tons/yr				MT/yr			
Day-Care Center	0.146 / 0					0.55	0.00	0.00	0.69
General Light Industry	9.56957 / 0					36.35	0.29	0.01	44.96
General Office Building	60.9517 / 0					231.53	1.87	0.05	286.36
Hotel	47.45 / 38.2987					304.01	1.46	0.04	347.46
Refrigerated Warehouse-No Rail	8.99214 / 0					34.16	0.28	0.01	42.25
Regional Shopping Center	5.84 / 0					22.18	0.18	0.00	27.44
Total						628.78	4.08	0.11	749.16

Mitigated

	Indoor/Outdoor Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	tons/yr				MT/yr			
Day-Care Center	0.146 / 0					0.55	0.00	0.00	0.69
General Light Industry	9.56957 / 0					36.35	0.29	0.01	44.96
General Office Building	60.9517 / 0					231.53	1.87	0.05	286.36
Hotel	47.45 / 38.2987					304.01	1.46	0.04	347.46
Refrigerated Warehouse-No Rail	8.99214 / 0					34.16	0.28	0.01	42.25
Regional Shopping Center	5.84 / 0					22.18	0.18	0.00	27.44
Total						628.78	4.08	0.11	749.16

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
	tons/yr				MT/yr			
Mitigated					455.82	26.94	0.00	1,021.53
Unmitigated					893.77	52.82	0.00	2,002.99
Total	NA	NA	NA	NA	NA	NA	NA	NA

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	tons	tons/yr				MT/yr			
Day-Care Center	11					2.23	0.13	0.00	5.00
General Light Industry	975					197.92	11.70	0.00	443.54
General Office Building	920					186.75	11.04	0.00	418.52
Hotel	1281					260.03	15.37	0.00	582.75
Refrigerated Warehouse-No Rail	880					178.63	10.56	0.00	400.33
Regional Shopping Center	336					68.20	4.03	0.00	152.85
Total						893.76	52.83	0.00	2,002.99

Mitigated

	Waste Disposed	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	tons	tons/yr				MT/yr			
Day-Care Center	5.61					1.14	0.07	0.00	2.55
General Light Industry	497.25					100.94	5.97	0.00	226.21
General Office Building	469.2					95.24	5.63	0.00	213.45
Hotel	653.31					132.62	7.84	0.00	297.20
Refrigerated Warehouse-No Rail	448.8					91.10	5.38	0.00	204.17
Regional Shopping Center	171.36					34.78	2.06	0.00	77.95
Total						455.82	26.95	0.00	1,021.53

9.0 Vegetation

	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Category	tons				MT			
Unmitigated					80.01	0.00	0.00	80.01
Total	NA	NA	NA	NA	NA	NA	NA	NA

9.1 Net New Trees

Species Class

	Number of Trees	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
		tons				MT			
Mixed Hardwood	109					80.01	0.00	0.00	80.01
Total						80.01	0.00	0.00	80.01

NBCU BAU LADWP

Los Angeles-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
General Office Building	0	1000sqft
Refrigerated Warehouse-No Rail	0	1000sqft
Health Club	65	1000sqft
High Turnover (Sit Down Restaurant)	46	1000sqft
Recreational Swimming Pool	1.11	1000sqft
Strip Mall	69	1000sqft

1.2 Other Project Characteristics

Urbanization Urban

Climate Zone 12

Wind Speed (m/s) 2.2

Precipitation Freq (Days) 33

Utility Company Los Angeles Department of Water & Power

1.3 User Entered Comments

Project Characteristics -

Land Use - set unit amount to reflect net area

Vehicle Trips - Based on transportation study.

Vechicle Emission Factors - EFs changed to not account for Pavley (Appendix D)

Vechicle Emission Factors - EFs changed to not account for Pavley (Appendix D)

Vechicle Emission Factors - EFs changed to not account for Pavley (Appendix D)

Woodstoves - CTG did not estimate area sources, so all are set to 0.

Consumer Products - CTG did not estimate area sources, so all are set to 0.

Area Coating - CTG did not estimate area sources, so all are set to 0.

Landscape Equipment - CTG did not estimate area sources, so all are set to 0.

Energy Use - Historical Data checkbox selected to reflect use of Title 24-2005.

Water And Wastewater - Water use set based on information in the DEIR.

Solid Waste - Solid waste generation set to reflect DEIR.

Land Use Change -

Sequestration -

Energy Mitigation -

Water Mitigation -

Waste Mitigation -

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2011											0.00	698.84	698.84	0.08	0.00	700.49
2012											0.00	33.13	33.13	0.00	0.00	33.23
Total											0.00	731.97	731.97	0.08	0.00	733.72

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					

2011											0.00	698.84	698.84	0.08	0.00	700.49
2012											0.00	33.13	33.13	0.00	0.00	33.23
Total											0.00	731.97	731.97	0.08	0.00	733.72

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area											0.00	0.00	0.00	0.00	0.00	0.00
Energy											0.00	3,788.74	3,788.74	0.08	0.05	3,805.19
Mobile											0.00	408.76	408.76	0.01	0.00	409.05
Waste											157.93	0.00	157.93	9.33	0.00	353.92
Water											0.00	196.38	196.38	0.82	0.02	220.49
Total											157.93	4,393.88	4,551.81	10.24	0.07	4,788.65

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area											0.00	0.00	0.00	0.00	0.00	0.00
Energy											0.00	3,788.74	3,788.74	0.08	0.05	3,805.19
Mobile											0.00	408.76	408.76	0.01	0.00	409.05
Waste											80.54	0.00	80.54	4.76	0.00	180.50
Water											0.00	196.38	196.38	0.82	0.02	220.49
Total											80.54	4,393.88	4,474.42	5.67	0.07	4,615.23

3.0 Construction Detail

3.1 Mitigation Measures Construction

3.2 Demolition - 2011

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	68.12	68.12	0.01	0.00	68.29
Total											0.00	68.12	68.12	0.01	0.00	68.29

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	1.72	1.72	0.00	0.00	1.73
Total											0.00	1.72	1.72	0.00	0.00	1.73

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	68.12	68.12	0.01	0.00	68.29
Total											0.00	68.12	68.12	0.01	0.00	68.29

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	1.72	1.72	0.00	0.00	1.73
Total											0.00	1.72	1.72	0.00	0.00	1.73

3.3 Site Preparation - 2011

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.00	0.00	0.00	0.00	0.00	0.00
Off-Road											0.00	18.13	18.13	0.00	0.00	18.18
Total											0.00	18.13	18.13	0.00	0.00	18.18

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	0.52	0.52	0.00	0.00	0.52
Total											0.00	0.52	0.52	0.00	0.00	0.52

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.00	0.00	0.00	0.00	0.00	0.00
Off-Road											0.00	18.13	18.13	0.00	0.00	18.18
Total											0.00	18.13	18.13	0.00	0.00	18.18

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00

Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	0.52	0.52	0.00	0.00	0.52
Total											0.00	0.52	0.52	0.00	0.00	0.52

3.4 Grading - 2011

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.00	0.00	0.00	0.00	0.00	0.00
Off-Road											0.00	19.01	19.01	0.00	0.00	19.06
Total											0.00	19.01	19.01	0.00	0.00	19.06

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	0.69	0.69	0.00	0.00	0.69
Total											0.00	0.69	0.69	0.00	0.00	0.69

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.00	0.00	0.00	0.00	0.00	0.00
Off-Road											0.00	19.01	19.01	0.00	0.00	19.06
Total											0.00	19.01	19.01	0.00	0.00	19.06

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	0.69	0.69	0.00	0.00	0.69
Total											0.00	0.69	0.69	0.00	0.00	0.69

3.5 Building Construction - 2011

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	415.93	415.93	0.06	0.00	417.11
Total											0.00	415.93	415.93	0.06	0.00	417.11

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	84.72	84.72	0.00	0.00	84.79

Worker											0.00	90.00	90.00	0.01	0.00	90.13
Total											0.00	174.72	174.72	0.01	0.00	174.92

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	415.93	415.93	0.06	0.00	417.11
Total											0.00	415.93	415.93	0.06	0.00	417.11

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	84.72	84.72	0.00	0.00	84.79
Worker											0.00	90.00	90.00	0.01	0.00	90.13
Total											0.00	174.72	174.72	0.01	0.00	174.92

3.5 Building Construction - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	5.50	5.50	0.00	0.00	5.51
Total											0.00	5.50	5.50	0.00	0.00	5.51

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	1.12	1.12	0.00	0.00	1.12
Worker											0.00	1.17	1.17	0.00	0.00	1.17
Total											0.00	2.29	2.29	0.00	0.00	2.29

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	5.50	5.50	0.00	0.00	5.51
Total											0.00	5.50	5.50	0.00	0.00	5.51

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	1.12	1.12	0.00	0.00	1.12
Worker											0.00	1.17	1.17	0.00	0.00	1.17
Total											0.00	2.29	2.29	0.00	0.00	2.29

3.6 Paving - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	19.60	19.60	0.00	0.00	19.67
Paving											0.00	0.00	0.00	0.00	0.00	0.00
Total											0.00	19.60	19.60	0.00	0.00	19.67

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	2.03	2.03	0.00	0.00	2.03
Total											0.00	2.03	2.03	0.00	0.00	2.03

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	19.60	19.60	0.00	0.00	19.67
Paving											0.00	0.00	0.00	0.00	0.00	0.00
Total											0.00	19.60	19.60	0.00	0.00	19.67

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	2.03	2.03	0.00	0.00	2.03
Total											0.00	2.03	2.03	0.00	0.00	2.03

3.7 Architectural Coating - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.00	0.00	0.00	0.00	0.00	0.00
Off-Road											0.00	2.30	2.30	0.00	0.00	2.30
Total											0.00	2.30	2.30	0.00	0.00	2.30

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	1.42	1.42	0.00	0.00	1.42
Total											0.00	1.42	1.42	0.00	0.00	1.42

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.00	0.00	0.00	0.00	0.00	0.00
Off-Road											0.00	2.30	2.30	0.00	0.00	2.30
Total											**0.00**	**2.30**	**2.30**	**0.00**	**0.00**	**2.30**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	1.42	1.42	0.00	0.00	1.42
Total											**0.00**	**1.42**	**1.42**	**0.00**	**0.00**	**1.42**

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated											0.00	408.76	408.76	0.01	0.00	409.05
Unmitigated											0.00	408.76	408.76	0.01	0.00	409.05
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Office Building	0.00	0.00	0.00		
Health Club	183.30	183.30	183.30	305,483	305,483
High Turnover (Sit Down Restaurant)	129.72	129.72	129.72	148,784	148,784
Recreational Swimming Pool	0.00	0.00	0.00		
Refrigerated Warehouse-No Rail	0.00	0.00	0.00		
Strip Mall	194.58	194.58	194.58	289,329	289,329
Total	507.60	507.60	507.60	743,596	743,596

4.3 Trip Type Information

	Miles			Trip %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
General Office Building	8.90	13.30	7.40	0.00	0.00	100.00
Health Club	8.90	13.30	7.40	0.00	0.00	100.00
High Turnover (Sit Down Restaurant)	8.90	13.30	7.40	0.00	0.00	100.00
Recreational Swimming Pool	8.90	13.30	7.40	0.00	0.00	100.00
Refrigerated Warehouse-No Rail	8.90	13.30	7.40	0.00	0.00	100.00
Strip Mall	8.90	13.30	7.40	0.00	0.00	100.00

5.0 Energy Detail

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated											0.00	2,325.25	2,325.25	0.05	0.02	2,332.80
Electricity Unmitigated											0.00	2,325.25	2,325.25	0.05	0.02	2,332.80
NaturalGas Mitigated											0.00	1,463.48	1,463.48	0.03	0.03	1,472.39
NaturalGas Unmitigated											0.00	1,463.48	1,463.48	0.03	0.03	1,472.39
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	tons/yr										MT/yr					
General Office Building	0											0.00	0.00	0.00	0.00	0.00	0.00
Health Club	1.287e+006											0.00	68.68	68.68	0.00	0.00	69.10
High Turnover (Sit Down Restaurant)	1.07801e+007											0.00	575.27	575.27	0.01	0.01	578.77
Recreational Swimming Pool	1.5232e+007											0.00	812.83	812.83	0.02	0.01	817.78
Refrigerated Warehouse-No Rail	0											0.00	0.00	0.00	0.00	0.00	0.00
Strip Mall	125580											0.00	6.70	6.70	0.00	0.00	6.74
Total												0.00	1,463.48	1,463.48	0.03	0.02	1,472.39

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	tons/yr										MT/yr					
General Office Building	0											0.00	0.00	0.00	0.00	0.00	0.00
Health Club	1.287e+006											0.00	68.68	68.68	0.00	0.00	69.10
High Turnover (Sit Down Restaurant)	1.07801e+007											0.00	575.27	575.27	0.01	0.01	578.77
Recreational Swimming Pool	1.5232e+007											0.00	812.83	812.83	0.02	0.01	817.78
Refrigerated Warehouse-No Rail	0											0.00	0.00	0.00	0.00	0.00	0.00
Strip Mall	125580											0.00	6.70	6.70	0.00	0.00	6.74
Total												0.00	1,463.48	1,463.48	0.03	0.02	1,472.39

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	kWh	tons/yr				MT/yr			
General Office Building	0					0.00	0.00	0.00	0.00
Health Club	815100					457.91	0.01	0.00	459.40
High Turnover (Sit Down Restaurant)	2.22272e+006					1,248.69	0.03	0.01	1,252.74
Recreational Swimming Pool	0					0.00	0.00	0.00	0.00
Refrigerated Warehouse-No Rail	0					0.00	0.00	0.00	0.00
Strip Mall	1.10124e+006					618.66	0.01	0.01	620.67
Total						2,325.26	0.05	0.02	2,332.81

Mitigated

	Electricity Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	kWh	tons/yr				MT/yr			

General Office Building	0					0.00	0.00	0.00	0.00
Health Club	815100					457.91	0.01	0.00	459.40
High Turnover (Sit Down Restaurant)	2.22272e+006					1,248.69	0.03	0.01	1,252.74
Recreational Swimming Pool	0					0.00	0.00	0.00	0.00
Refrigerated Warehouse-No Rail	0					0.00	0.00	0.00	0.00
Strip Mall	1.10124e+006					618.66	0.01	0.01	620.67
Total						**2,325.26**	**0.05**	**0.02**	**2,332.81**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated											0.00	0.00	0.00	0.00	0.00	0.00
Unmitigated											0.00	0.00	0.00	0.00	0.00	0.00
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

6.2 Area by SubCategory

<u>Unmitigated</u>

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating											0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products											0.00	0.00	0.00	0.00	0.00	0.00
Landscaping											0.00	0.00	0.00	0.00	0.00	0.00
Total											**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

<u>Mitigated</u>

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating											0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products											0.00	0.00	0.00	0.00	0.00	0.00
Landscaping											0.00	0.00	0.00	0.00	0.00	0.00
Total											**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

7.0 Water Detail

7.1 Mitigation Measures Water

	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr				MT/yr			
Mitigated					196.38	0.82	0.02	220.49
Unmitigated					196.38	0.82	0.02	220.49
Total	NA	NA	NA	NA	NA	NA	NA	NA

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	tons/yr				MT/yr			
General Office Building	0 / 0					0.00	0.00	0.00	0.00
Health Club	9.6798 / 0					70.92	0.30	0.01	79.62
High Turnover (Sit Down Restaurant)	0 / 0					0.00	0.00	0.00	0.00
Recreational Swimming Pool	0 / 0					0.00	0.00	0.00	0.00
Refrigerated Warehouse-No Rail	0 / 0					0.00	0.00	0.00	0.00
Strip Mall	17.1258 / 0					125.47	0.53	0.01	140.87
Total						**196.39**	**0.83**	**0.02**	**220.49**

Mitigated

	Indoor/Outdoor Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	tons/yr				MT/yr			
General Office Building	0 / 0					0.00	0.00	0.00	0.00
Health Club	9.6798 / 0					70.92	0.30	0.01	79.62
High Turnover (Sit Down Restaurant)	0 / 0					0.00	0.00	0.00	0.00
Recreational Swimming Pool	0 / 0					0.00	0.00	0.00	0.00
Refrigerated Warehouse-No Rail	0 / 0					0.00	0.00	0.00	0.00
Strip Mall	17.1258 / 0					125.47	0.53	0.01	140.87
Total						**196.39**	**0.83**	**0.02**	**220.49**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
	tons/yr				MT/yr			
Mitigated					80.54	4.76	0.00	180.50
Unmitigated					157.93	9.33	0.00	353.92
Total	NA	NA	NA	NA	NA	NA	NA	NA

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	tons	tons/yr				MT/yr			
General Office Building	0					0.00	0.00	0.00	0.00
Health Club	179					36.34	2.15	0.00	81.43
High Turnover (Sit Down Restaurant)	0					0.00	0.00	0.00	0.00
Recreational Swimming Pool	0					0.00	0.00	0.00	0.00
Refrigerated Warehouse-No Rail	0					0.00	0.00	0.00	0.00
Strip Mall	599					121.59	7.19	0.00	272.49
Total						**157.93**	**9.34**	**0.00**	**353.92**

Mitigated

	Waste Disposed	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e

Land Use	tons	tons/yr				MT/yr			
General Office Building	0					0.00	0.00	0.00	0.00
Health Club	91.29					18.53	1.10	0.00	41.53
High Turnover (Sit Down Restaurant)	0					0.00	0.00	0.00	0.00
Recreational Swimming Pool	0					0.00	0.00	0.00	0.00
Refrigerated Warehouse-No Rail	0					0.00	0.00	0.00	0.00
Strip Mall	305.49					62.01	3.66	0.00	138.97
Total						80.54	4.76	0.00	180.50

9.0 Vegetation

NBCU BAU Residential growth only

Los Angeles-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
Parking Lot	1422.1	1000sqft
Parking Structure	2597.9	1000sqft
User Defined Parking	649.28	User Defined Unit
Apartments High Rise	340	Dwelling Unit
Apartments Mid Rise	340	Dwelling Unit
Condo/Townhouse	2257	Dwelling Unit

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Utility Company**	Los Angeles Department of Water & Power
Climate Zone	12	**Precipitation Freq (Days)**	33		

1.3 User Entered Comments

Project Characteristics -

Land Use - Values from DEIR.

Vehicle Trips - Based on transportation study.

Vechicle Emission Factors - EFs changed to not account for Pavley (Appendix D)

Vechicle Emission Factors - EFs changed to not account for Pavley (Appendix D)

Vechicle Emission Factors - EFs changed to not account for Pavley (Appendix D)

Woodstoves - CTG did not estimate emissions from area sources, thus we are setting all area sources to 0.

Consumer Products - CTG did not estimate emissions from area sources, thus we are setting all area sources to 0.

Area Coating - CTG did not estimate emissions from area sources, thus we are setting all area sources to 0.

Landscape Equipment - CTG did not estimate emissions from area sources, thus we are setting all area sources to 0.

Energy Use - Checked historical data box to use Title 24 - 2005, as opposed to Title 24 - 2008 that the model uses by default. Based parking lighting intensity on CTG Report.

Water And Wastewater - Water demand changed to match DEIR.
Electricity intensity obtained from Appendix Q. Page 23.

Solid Waste - Solid waste generation changed to reflect DEIR.

Sequestration -

Energy Mitigation -

Water Mitigation -

Waste Mitigation -

2.0 Emissions Summary

2.1 Overall Construction

<u>Unmitigated Construction</u>

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2011											0.00	907.95	907.95	0.11	0.00	910.16
2012											0.00	1,017.15	1,017.15	0.11	0.00	1,019.54
2013											0.00	1,313.79	1,313.79	0.13	0.00	1,316.46
2014											0.00	4,497.78	4,497.78	0.26	0.00	4,503.18
2015											0.00	9,686.34	9,686.34	0.45	0.00	9,695.78
2016											0.00	9,611.29	9,611.29	0.42	0.00	9,620.11
2017											0.00	9,469.89	9,469.89	0.39	0.00	9,478.06
2018											0.00	9,404.65	9,404.65	0.36	0.00	9,412.29

2019											0.00	9,308.69	9,308.69	0.34	0.00	9,315.83
2020											0.00	9,253.01	9,253.01	0.32	0.00	9,259.75
2021											0.00	9,167.07	9,167.07	0.30	0.00	9,173.44
2022											0.00	9,051.82	9,051.82	0.29	0.00	9,057.84
2023											0.00	8,976.27	8,976.27	0.27	0.00	8,982.00
2024											0.00	8,961.57	8,961.57	0.26	0.00	8,967.04
2025											0.00	8,862.12	8,862.12	0.25	0.00	8,867.32
2026											0.00	8,862.12	8,862.12	0.25	0.00	8,867.32
2027											0.00	8,862.12	8,862.12	0.25	0.00	8,867.32
2028											0.00	8,828.16	8,828.16	0.25	0.00	8,833.34
2029											0.00	8,862.12	8,862.12	0.25	0.00	8,867.32
2030											0.00	8,626.21	8,626.21	0.21	0.00	8,630.59
2031											0.00	8,626.21	8,626.21	0.21	0.00	8,630.59
2032											0.00	4,068.05	4,068.05	0.10	0.00	4,070.25
2033											0.00	527.19	527.19	0.02	0.00	527.68
2034											0.00	919.94	919.94	0.03	0.00	920.59
Total											0.00	167,671.51	#########	5.83	0.00	167,793.80

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2011											0.00	907.95	907.95	0.11	0.00	910.16
2012											0.00	1,017.15	1,017.15	0.11	0.00	1,019.54
2013											0.00	1,313.79	1,313.79	0.13	0.00	1,316.46
2014											0.00	4,497.78	4,497.78	0.26	0.00	4,503.18
2015											0.00	9,686.34	9,686.34	0.45	0.00	9,695.78
2016											0.00	9,611.29	9,611.29	0.42	0.00	9,620.11
2017											0.00	9,469.89	9,469.89	0.39	0.00	9,478.06
2018											0.00	9,404.65	9,404.65	0.36	0.00	9,412.29
2019											0.00	9,308.69	9,308.69	0.34	0.00	9,315.83
2020											0.00	9,253.01	9,253.01	0.32	0.00	9,259.75
2021											0.00	9,167.07	9,167.07	0.30	0.00	9,173.44
2022											0.00	9,051.82	9,051.82	0.29	0.00	9,057.84
2023											0.00	8,976.27	8,976.27	0.27	0.00	8,982.00
2024											0.00	8,961.57	8,961.57	0.26	0.00	8,967.04
2025											0.00	8,862.12	8,862.12	0.25	0.00	8,867.32
2026											0.00	8,862.12	8,862.12	0.25	0.00	8,867.32
2027											0.00	8,862.12	8,862.12	0.25	0.00	8,867.32
2028											0.00	8,828.16	8,828.16	0.25	0.00	8,833.34
2029											0.00	8,862.12	8,862.12	0.25	0.00	8,867.32
2030											0.00	8,626.21	8,626.21	0.21	0.00	8,630.59
2031											0.00	8,626.21	8,626.21	0.21	0.00	8,630.59
2032											0.00	4,068.05	4,068.05	0.10	0.00	4,070.25
2033											0.00	527.19	527.19	0.02	0.00	527.68
2034											0.00	919.94	919.94	0.03	0.00	920.59
Total											0.00	167,671.51	#########	5.83	0.00	167,793.80

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area											196.55	1,871.53	2,068.08	1.02	0.03	2,099.82

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Energy											0.00	18,964.59	18,964.59	0.43	0.20	19,036.33
Mobile											0.00	31,609.08	31,609.08	0.96	0.00	31,629.14
Waste											554.17	0.00	554.17	32.75	0.00	1,241.92
Water											0.00	1,517.59	1,517.59	5.27	0.14	1,672.70
Total											750.72	53,962.79	54,713.51	40.43	0.37	55,679.91

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area											196.55	1,871.53	2,068.08	1.02	0.03	2,099.82
Energy											0.00	18,964.59	18,964.59	0.43	0.20	19,036.33
Mobile											0.00	31,609.08	31,609.08	0.96	0.00	31,629.14
Waste											282.62	0.00	282.62	16.70	0.00	633.38
Water											0.00	1,517.59	1,517.59	5.27	0.14	1,672.70
Total											479.17	53,962.79	54,441.96	24.38	0.37	55,071.37

3.0 Construction Detail

3.1 Mitigation Measures Construction

3.2 Demolition - 2011

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	885.54	885.54	0.10	0.00	887.72
Total											0.00	885.54	885.54	0.10	0.00	887.72

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	22.41	22.41	0.00	0.00	22.44
Total											0.00	22.41	22.41	0.00	0.00	22.44

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	885.54	885.54	0.10	0.00	887.72

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Total											0.00	885.54	885.54	0.10	0.00	887.72

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	22.41	22.41	0.00	0.00	22.44
Total											0.00	22.41	22.41	0.00	0.00	22.44

3.2 Demolition - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	136.24	136.24	0.02	0.00	136.55
Total											0.00	136.24	136.24	0.02	0.00	136.55

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	3.38	3.38	0.00	0.00	3.39
Total											0.00	3.38	3.38	0.00	0.00	3.39

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	136.24	136.24	0.02	0.00	136.55
Total											0.00	136.24	136.24	0.02	0.00	136.55

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	3.38	3.38	0.00	0.00	3.39
Total											0.00	3.38	3.38	0.00	0.00	3.39

3.3 Site Preparation - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.00	0.00	0.00	0.00	0.00	0.00
Off-Road											0.00	652.81	652.81	0.08	0.00	654.41
Total											0.00	652.81	652.81	0.08	0.00	654.41

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	18.26	18.26	0.00	0.00	18.28
Total											0.00	18.26	18.26	0.00	0.00	18.28

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.00	0.00	0.00	0.00	0.00	0.00
Off-Road											0.00	652.81	652.81	0.08	0.00	654.41
Total											0.00	652.81	652.81	0.08	0.00	654.41

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	18.26	18.26	0.00	0.00	18.28
Total											0.00	18.26	18.26	0.00	0.00	18.28

3.4 Grading - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.00	0.00	0.00	0.00	0.00	0.00
Off-Road											0.00	201.85	201.85	0.02	0.00	202.29
Total											0.00	201.85	201.85	0.02	0.00	202.29

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	4.62	4.62	0.00	0.00	4.63
Total											0.00	4.62	4.62	0.00	0.00	4.63

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.00	0.00	0.00	0.00	0.00	0.00
Off-Road											0.00	201.85	201.85	0.02	0.00	202.29
Total											0.00	201.85	201.85	0.02	0.00	202.29

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	4.62	4.62	0.00	0.00	4.63
Total											0.00	4.62	4.62	0.00	0.00	4.63

3.4 Grading - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.00	0.00	0.00	0.00	0.00	0.00
Off-Road											0.00	1,284.94	1,284.94	0.13	0.00	1,287.58
Total											0.00	1,284.94	1,284.94	0.13	0.00	1,287.58

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	28.85	28.85	0.00	0.00	28.89
Total											0.00	28.85	28.85	0.00	0.00	28.89

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.00	0.00	0.00	0.00	0.00	0.00
Off-Road											0.00	1,284.94	1,284.94	0.13	0.00	1,287.58
Total											0.00	1,284.94	1,284.94	0.13	0.00	1,287.58

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	28.85	28.85	0.00	0.00	28.89
Total											0.00	28.85	28.85	0.00	0.00	28.89

3.4 Grading - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.00	0.00	0.00	0.00	0.00	0.00
Off-Road											0.00	802.47	802.47	0.07	0.00	804.03
Total											0.00	802.47	802.47	0.07	0.00	804.03

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	17.73	17.73	0.00	0.00	17.75
Total											0.00	17.73	17.73	0.00	0.00	17.75

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.00	0.00	0.00	0.00	0.00	0.00
Off-Road											0.00	802.47	802.47	0.07	0.00	804.03
Total											0.00	802.47	802.47	0.07	0.00	804.03

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	17.73	17.73	0.00	0.00	17.75
Total											0.00	17.73	17.73	0.00	0.00	17.75

3.5 Building Construction - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	179.56	179.56	0.02	0.00	179.96
Total											0.00	179.56	179.56	0.02	0.00	179.96

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	1,326.02	1,326.02	0.04	0.00	1,326.79
Worker											0.00	2,171.99	2,171.99	0.13	0.00	2,174.66
Total											0.00	3,498.01	3,498.01	0.17	0.00	3,501.45

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	179.56	179.56	0.02	0.00	179.96
Total											0.00	179.56	179.56	0.02	0.00	179.96

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	1,326.02	1,326.02	0.04	0.00	1,326.79
Worker											0.00	2,171.99	2,171.99	0.13	0.00	2,174.66
Total											0.00	3,498.01	3,498.01	0.17	0.00	3,501.45

3.5 Building Construction - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	478.23	478.23	0.05	0.00	479.20
Total											0.00	478.23	478.23	0.05	0.00	479.20

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	3,539.97	3,539.97	0.09	0.00	3,541.80
Worker											0.00	5,668.14	5,668.14	0.32	0.00	5,674.78
Total											0.00	9,208.11	9,208.11	0.41	0.00	9,216.58

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	478.23	478.23	0.05	0.00	479.20
Total											0.00	478.23	478.23	0.05	0.00	479.20

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	3,539.97	3,539.97	0.09	0.00	3,541.80
Worker											0.00	5,668.14	5,668.14	0.32	0.00	5,674.78
Total											0.00	9,208.11	9,208.11	0.41	0.00	9,216.58

3.5 Building Construction - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	478.23	478.23	0.04	0.00	479.11
Total											0.00	478.23	478.23	0.04	0.00	479.11

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	3,547.22	3,547.22	0.08	0.00	3,548.89
Worker											0.00	5,585.85	5,585.85	0.30	0.00	5,592.10
Total											0.00	9,133.07	9,133.07	0.38	0.00	9,140.99

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	478.23	478.23	0.04	0.00	479.11
Total											0.00	478.23	478.23	0.04	0.00	479.11

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	3,547.22	3,547.22	0.08	0.00	3,548.89
Worker											0.00	5,585.85	5,585.85	0.30	0.00	5,592.10
Total											0.00	9,133.07	9,133.07	0.38	0.00	9,140.99

3.5 Building Construction - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	476.40	476.40	0.04	0.00	477.20
Total											0.00	476.40	476.40	0.04	0.00	477.20

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	3,540.55	3,540.55	0.07	0.00	3,542.08
Worker											0.00	5,452.95	5,452.95	0.28	0.00	5,458.78
Total											0.00	8,993.50	8,993.50	0.35	0.00	9,000.86

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	476.40	476.40	0.04	0.00	477.20
Total											0.00	476.40	476.40	0.04	0.00	477.20

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	3,540.55	3,540.55	0.07	0.00	3,542.08

Worker											0.00	5,452.95	5,452.95	0.28	0.00	5,458.78
Total											0.00	8,993.50	8,993.50	0.35	0.00	9,000.86

3.5 Building Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	478.23	478.23	0.04	0.00	478.97
Total											0.00	478.23	478.23	0.04	0.00	478.97

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	3,560.62	3,560.62	0.07	0.00	3,562.03
Worker											0.00	5,365.80	5,365.80	0.26	0.00	5,371.29
Total											0.00	8,926.42	8,926.42	0.33	0.00	8,933.32

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	478.23	478.23	0.04	0.00	478.97
Total											0.00	478.23	478.23	0.04	0.00	478.97

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	3,560.62	3,560.62	0.07	0.00	3,562.03
Worker											0.00	5,365.80	5,365.80	0.26	0.00	5,371.29
Total											0.00	8,926.42	8,926.42	0.33	0.00	8,933.32

3.5 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	478.23	478.23	0.03	0.00	478.91
Total											0.00	478.23	478.23	0.03	0.00	478.91

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	3,566.76	3,566.76	0.06	0.00	3,568.06
Worker											0.00	5,263.70	5,263.70	0.25	0.00	5,268.86
Total											0.00	8,830.46	8,830.46	0.31	0.00	8,836.92

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	478.23	478.23	0.03	0.00	478.91
Total											0.00	478.23	478.23	0.03	0.00	478.91

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	3,566.76	3,566.76	0.06	0.00	3,568.06
Worker											0.00	5,263.70	5,263.70	0.25	0.00	5,268.86
Total											0.00	8,830.46	8,830.46	0.31	0.00	8,836.92

3.5 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	480.06	480.06	0.03	0.00	480.68
Total											0.00	480.06	480.06	0.03	0.00	480.68

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	3,586.01	3,586.01	0.06	0.00	3,587.24
Worker											0.00	5,186.93	5,186.93	0.23	0.00	5,191.83
Total											0.00	8,772.94	8,772.94	0.29	0.00	8,779.07

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	480.06	480.06	0.03	0.00	480.68
Total											0.00	480.06	480.06	0.03	0.00	480.68

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	3,586.01	3,586.01	0.06	0.00	3,587.24
Worker											0.00	5,186.93	5,186.93	0.23	0.00	5,191.83
Total											0.00	8,772.94	8,772.94	0.29	0.00	8,779.07

3.5 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	478.23	478.23	0.03	0.00	478.79
Total											0.00	478.23	478.23	0.03	0.00	478.79

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	3,581.24	3,581.24	0.05	0.00	3,582.39
Worker											0.00	5,107.59	5,107.59	0.22	0.00	5,112.25
Total											0.00	8,688.83	8,688.83	0.27	0.00	8,694.64

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	478.23	478.23	0.03	0.00	478.79
Total											0.00	478.23	478.23	0.03	0.00	478.79

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	3,581.24	3,581.24	0.05	0.00	3,582.39
Worker											0.00	5,107.59	5,107.59	0.22	0.00	5,112.25
Total											0.00	8,688.83	8,688.83	0.27	0.00	8,694.64

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	476.40	476.40	0.02	0.00	476.92
Total											0.00	476.40	476.40	0.02	0.00	476.92

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	3,572.69	3,572.69	0.05	0.00	3,573.76
Worker											0.00	5,002.73	5,002.73	0.21	0.00	5,007.16
Total											0.00	8,575.42	8,575.42	0.26	0.00	8,580.92

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	tons/yr										MT/yr					
Off-Road											0.00	476.40	476.40	0.02	0.00	476.92
Total											0.00	476.40	476.40	0.02	0.00	476.92

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	3,572.69	3,572.69	0.05	0.00	3,573.76
Worker											0.00	5,002.73	5,002.73	0.21	0.00	5,007.16
Total											0.00	8,575.42	8,575.42	0.26	0.00	8,580.92

3.5 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	476.40	476.40	0.02	0.00	476.89
Total											0.00	476.40	476.40	0.02	0.00	476.89

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	3,577.43	3,577.43	0.05	0.00	3,578.45
Worker											0.00	4,922.45	4,922.45	0.20	0.00	4,926.67
Total											0.00	8,499.88	8,499.88	0.25	0.00	8,505.12

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	476.40	476.40	0.02	0.00	476.89
Total											0.00	476.40	476.40	0.02	0.00	476.89

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	3,577.43	3,577.43	0.05	0.00	3,578.45
Worker											0.00	4,922.45	4,922.45	0.20	0.00	4,926.67
Total											0.00	8,499.88	8,499.88	0.25	0.00	8,505.12

3.5 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	480.06	480.06	0.02	0.00	480.53

Total											0.00	480.06	480.06	0.02	0.00	480.53

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	3,603.06	3,603.06	0.05	0.00	3,604.03
Worker											0.00	4,878.45	4,878.45	0.19	0.00	4,882.48
Total											0.00	8,481.51	8,481.51	0.24	0.00	8,486.51

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	480.06	480.06	0.02	0.00	480.53
Total											0.00	480.06	480.06	0.02	0.00	480.53

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	3,603.06	3,603.06	0.05	0.00	3,604.03
Worker											0.00	4,878.45	4,878.45	0.19	0.00	4,882.48
Total											0.00	8,481.51	8,481.51	0.24	0.00	8,486.51

3.5 Building Construction - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	478.23	478.23	0.02	0.00	478.66
Total											0.00	478.23	478.23	0.02	0.00	478.66

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	3,592.63	3,592.63	0.04	0.00	3,593.56
Worker											0.00	4,791.26	4,791.26	0.18	0.00	4,795.10
Total											0.00	8,383.89	8,383.89	0.22	0.00	8,388.66

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	478.23	478.23	0.02	0.00	478.66
Total											0.00	478.23	478.23	0.02	0.00	478.66

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	3,592.63	3,592.63	0.04	0.00	3,593.56
Worker											0.00	4,791.26	4,791.26	0.18	0.00	4,795.10
Total											0.00	8,383.89	8,383.89	0.22	0.00	8,388.66

3.5 Building Construction - 2026

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	478.23	478.23	0.02	0.00	478.66
Total											0.00	478.23	478.23	0.02	0.00	478.66

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	3,592.63	3,592.63	0.04	0.00	3,593.56
Worker											0.00	4,791.26	4,791.26	0.18	0.00	4,795.10
Total											0.00	8,383.89	8,383.89	0.22	0.00	8,388.66

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	478.23	478.23	0.02	0.00	478.66
Total											0.00	478.23	478.23	0.02	0.00	478.66

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	3,592.63	3,592.63	0.04	0.00	3,593.56
Worker											0.00	4,791.26	4,791.26	0.18	0.00	4,795.10
Total											0.00	8,383.89	8,383.89	0.22	0.00	8,388.66

3.5 Building Construction - 2027

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	478.23	478.23	0.02	0.00	478.66
Total											0.00	478.23	478.23	0.02	0.00	478.66

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	3,592.63	3,592.63	0.04	0.00	3,593.56
Worker											0.00	4,791.26	4,791.26	0.18	0.00	4,795.10
Total											**0.00**	**8,383.89**	**8,383.89**	**0.22**	**0.00**	**8,388.66**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	478.23	478.23	0.02	0.00	478.66
Total											**0.00**	**478.23**	**478.23**	**0.02**	**0.00**	**478.66**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	3,592.63	3,592.63	0.04	0.00	3,593.56
Worker											0.00	4,791.26	4,791.26	0.18	0.00	4,795.10
Total											**0.00**	**8,383.89**	**8,383.89**	**0.22**	**0.00**	**8,388.66**

3.5 Building Construction - 2028

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	476.40	476.40	0.02	0.00	476.83
Total											**0.00**	**476.40**	**476.40**	**0.02**	**0.00**	**476.83**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	3,578.86	3,578.86	0.04	0.00	3,579.79
Worker											0.00	4,772.90	4,772.90	0.18	0.00	4,776.72
Total											**0.00**	**8,351.76**	**8,351.76**	**0.22**	**0.00**	**8,356.51**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	476.40	476.40	0.02	0.00	476.83
Total											**0.00**	**476.40**	**476.40**	**0.02**	**0.00**	**476.83**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	3,578.86	3,578.86	0.04	0.00	3,579.79
Worker											0.00	4,772.90	4,772.90	0.18	0.00	4,776.72
Total											**0.00**	**8,351.76**	**8,351.76**	**0.22**	**0.00**	**8,356.51**

3.5 Building Construction - 2029

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	478.23	478.23	0.02	0.00	478.66
Total											**0.00**	**478.23**	**478.23**	**0.02**	**0.00**	**478.66**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	3,592.63	3,592.63	0.04	0.00	3,593.56
Worker											0.00	4,791.26	4,791.26	0.18	0.00	4,795.10
Total											**0.00**	**8,383.89**	**8,383.89**	**0.22**	**0.00**	**8,388.66**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	478.23	478.23	0.02	0.00	478.66
Total											**0.00**	**478.23**	**478.23**	**0.02**	**0.00**	**478.66**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	3,592.63	3,592.63	0.04	0.00	3,593.56
Worker											0.00	4,791.26	4,791.26	0.18	0.00	4,795.10
Total											**0.00**	**8,383.89**	**8,383.89**	**0.22**	**0.00**	**8,388.66**

3.5 Building Construction - 2030

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	478.23	478.23	0.02	0.00	478.60
Total											**0.00**	**478.23**	**478.23**	**0.02**	**0.00**	**478.60**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	3,605.34	3,605.34	0.04	0.00	3,606.15

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Worker											0.00	4,542.64	4,542.64	0.15	0.00	4,545.84
Total											0.00	8,147.98	8,147.98	0.19	0.00	8,151.99

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	478.23	478.23	0.02	0.00	478.60
Total											0.00	478.23	478.23	0.02	0.00	478.60

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	3,605.34	3,605.34	0.04	0.00	3,606.15
Worker											0.00	4,542.64	4,542.64	0.15	0.00	4,545.84
Total											0.00	8,147.98	8,147.98	0.19	0.00	8,151.99

3.5 Building Construction - 2031

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	478.23	478.23	0.02	0.00	478.60
Total											0.00	478.23	478.23	0.02	0.00	478.60

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	3,605.34	3,605.34	0.04	0.00	3,606.15
Worker											0.00	4,542.64	4,542.64	0.15	0.00	4,545.84
Total											0.00	8,147.98	8,147.98	0.19	0.00	8,151.99

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	478.23	478.23	0.02	0.00	478.60
Total											0.00	478.23	478.23	0.02	0.00	478.60

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	3,605.34	3,605.34	0.04	0.00	3,606.15
Worker											0.00	4,542.64	4,542.64	0.15	0.00	4,545.84
Total											0.00	8,147.98	8,147.98	0.19	0.00	8,151.99

3.5 Building Construction - 2032

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	214.38	214.38	0.01	0.00	214.54
Total											0.00	214.38	214.38	0.01	0.00	214.54

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	1,616.18	1,616.18	0.02	0.00	1,616.55
Worker											0.00	2,036.36	2,036.36	0.07	0.00	2,037.79
Total											0.00	3,652.54	3,652.54	0.09	0.00	3,654.34

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	214.38	214.38	0.01	0.00	214.54
Total											0.00	214.38	214.38	0.01	0.00	214.54

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	1,616.18	1,616.18	0.02	0.00	1,616.55
Worker											0.00	2,036.36	2,036.36	0.07	0.00	2,037.79
Total											0.00	3,652.54	3,652.54	0.09	0.00	3,654.34

3.6 Paving - 2032

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	191.84	191.84	0.01	0.00	192.08
Paving											0.00	0.00	0.00	0.00	0.00	0.00
Total											0.00	191.84	191.84	0.01	0.00	192.08

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	9.29	9.29	0.00	0.00	9.29
Total											0.00	9.29	9.29	0.00	0.00	9.29

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	191.84	191.84	0.01	0.00	192.08
Paving											0.00	0.00	0.00	0.00	0.00	0.00
Total											0.00	191.84	191.84	0.01	0.00	192.08

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	9.29	9.29	0.00	0.00	9.29
Total											0.00	9.29	9.29	0.00	0.00	9.29

3.6 Paving - 2033

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	244.77	244.77	0.01	0.00	245.06
Paving											0.00	0.00	0.00	0.00	0.00	0.00
Total											0.00	244.77	244.77	0.01	0.00	245.06

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	11.85	11.85	0.00	0.00	11.86
Total											0.00	11.85	11.85	0.00	0.00	11.86

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	244.77	244.77	0.01	0.00	245.06
Paving											0.00	0.00	0.00	0.00	0.00	0.00
Total											0.00	244.77	244.77	0.01	0.00	245.06

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	11.85	11.85	0.00	0.00	11.86
Total											0.00	11.85	11.85	0.00	0.00	11.86

3.7 Architectural Coating - 2033

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.00	0.00	0.00	0.00	0.00	0.00
Off-Road											0.00	9.56	9.56	0.00	0.00	9.57
Total											0.00	9.56	9.56	0.00	0.00	9.57

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	261.01	261.01	0.01	0.00	261.19
Total											0.00	261.01	261.01	0.01	0.00	261.19

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.00	0.00	0.00	0.00	0.00	0.00
Off-Road											0.00	9.56	9.56	0.00	0.00	9.57
Total											0.00	9.56	9.56	0.00	0.00	9.57

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	261.01	261.01	0.01	0.00	261.19
Total											0.00	261.01	261.01	0.01	0.00	261.19

3.7 Architectural Coating - 2034

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.00	0.00	0.00	0.00	0.00	0.00
Off-Road											0.00	32.52	32.52	0.00	0.00	32.54
Total											0.00	32.52	32.52	0.00	0.00	32.54

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	887.43	887.43	0.03	0.00	888.05
Total											0.00	887.43	887.43	0.03	0.00	888.05

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.00	0.00	0.00	0.00	0.00	0.00
Off-Road											0.00	32.52	32.52	0.00	0.00	32.54
Total											0.00	32.52	32.52	0.00	0.00	32.54

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	887.43	887.43	0.03	0.00	888.05
Total											0.00	887.43	887.43	0.03	0.00	888.05

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated											0.00	31,609.08	31,609.08	0.96	0.00	31,629.14
Unmitigated											0.00	31,609.08	31,609.08	0.96	0.00	31,629.14
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments High Rise	2,060.40	2,060.40	2060.40	6,862,316	6,862,316
Apartments Mid Rise	2,060.40	2,060.40	2060.40	6,862,316	6,862,316
Condo/Townhouse	13,677.42	13,677.42	13677.42	45,553,667	45,553,667
Parking Lot	0.00	0.00	0.00		
Parking Structure	0.00	0.00	0.00		
User Defined Parking	0.00	0.00	0.00		
Total	17,798.22	17,798.22	17,798.22	59,278,298	59,278,298

4.3 Trip Type Information

	Miles			Trip %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
Apartments High Rise	12.70	7.00	9.50	40.20	19.20	40.60
Apartments Mid Rise	12.70	7.00	9.50	40.20	19.20	40.60
Condo/Townhouse	12.70	7.00	9.50	40.20	19.20	40.60
Parking Lot	8.90	13.30	7.40	0.00	0.00	0.00
Parking Structure	8.90	13.30	7.40	0.00	0.00	0.00
User Defined Parking	8.90	13.30	7.40	0.00	0.00	0.00

5.0 Energy Detail

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated											0.00	15,375.53	15,375.53	0.36	0.14	15,425.42
Electricity Unmitigated											0.00	15,375.53	15,375.53	0.36	0.14	15,425.42
NaturalGas Mitigated											0.00	3,589.06	3,589.06	0.07	0.07	3,610.90
NaturalGas Unmitigated											0.00	3,589.06	3,589.06	0.07	0.07	3,610.90
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	tons/yr										MT/yr					
Apartments High Rise	3.9238e+006											0.00	209.39	209.39	0.00	0.00	210.66
Apartments Mid Rise	3.9238e+006											0.00	209.39	209.39	0.00	0.00	210.66
Condo/Townhouse	5.94089e+007											0.00	3,170.28	3,170.28	0.06	0.06	3,189.58
Parking Lot	0											0.00	0.00	0.00	0.00	0.00	0.00
Parking Structure	0											0.00	0.00	0.00	0.00	0.00	0.00
User Defined Parking	0											0.00	0.00	0.00	0.00	0.00	0.00
Total												**0.00**	**3,589.06**	**3,589.06**	**0.06**	**0.06**	**3,610.90**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	tons/yr										MT/yr					
Apartments High Rise	3.9238e+006											0.00	209.39	209.39	0.00	0.00	210.66
Apartments Mid Rise	3.9238e+006											0.00	209.39	209.39	0.00	0.00	210.66
Condo/Townhouse	5.94089e+007											0.00	3,170.28	3,170.28	0.06	0.06	3,189.58
Parking Lot	0											0.00	0.00	0.00	0.00	0.00	0.00
Parking Structure	0											0.00	0.00	0.00	0.00	0.00	0.00
User Defined Parking	0											0.00	0.00	0.00	0.00	0.00	0.00
Total												**0.00**	**3,589.06**	**3,589.06**	**0.06**	**0.06**	**3,610.90**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	kWh	tons/yr				MT/yr			
Apartments High Rise	1.31796e+006					740.41	0.02	0.01	742.81
Apartments Mid Rise	1.31796e+006					740.41	0.02	0.01	742.81
Condo/Townhouse	1.04992e+007					5,898.26	0.14	0.05	5,917.40
Parking Lot	497735					279.62	0.01	0.00	280.53
Parking Structure	1.34831e+007					7,574.58	0.18	0.07	7,599.16
User Defined Parking	253220					142.25	0.00	0.00	142.72
Total						**15,375.53**	**0.37**	**0.14**	**15,425.43**

Mitigated

	Electricity Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	kWh	tons/yr				MT/yr			
Apartments High Rise	1.31796e+006					740.41	0.02	0.01	742.81
Apartments Mid Rise	1.31796e+006					740.41	0.02	0.01	742.81

Condo/Townhouse	1.04992e+007					5,898.26	0.14	0.05	5,917.40
Parking Lot	497735					279.62	0.01	0.00	280.53
Parking Structure	1.34831e+007					7,574.58	0.18	0.07	7,599.16
User Defined Parking	253220					142.25	0.00	0.00	142.72
Total						**15,375.53**	**0.37**	**0.14**	**15,425.43**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated											196.55	1,871.53	2,068.08	1.02	0.03	2,099.82
Unmitigated											196.55	1,871.53	2,068.08	1.02	0.03	2,099.82
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating											0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products											0.00	0.00	0.00	0.00	0.00	0.00
Hearth											196.55	1,798.47	1,995.03	0.95	0.03	2,025.27
Landscaping											0.00	73.05	73.05	0.07	0.00	74.55
Total											**196.55**	**1,871.52**	**2,068.08**	**1.02**	**0.03**	**2,099.82**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating											0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products											0.00	0.00	0.00	0.00	0.00	0.00
Hearth											196.55	1,798.47	1,995.03	0.95	0.03	2,025.27
Landscaping											0.00	73.05	73.05	0.07	0.00	74.55
Total											**196.55**	**1,871.52**	**2,068.08**	**1.02**	**0.03**	**2,099.82**

7.0 Water Detail

7.1 Mitigation Measures Water

	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr				MT/yr			
Mitigated					1,517.59	5.27	0.14	1,672.70
Unmitigated					1,517.59	5.27	0.14	1,672.70
Total	NA	NA	NA	NA	NA	NA	NA	NA

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	tons/yr				MT/yr			
Apartments High Rise	0 / 0					0.00	0.00	0.00	0.00
Apartments Mid Rise	0 / 0					0.00	0.00	0.00	0.00
Condo/Townhouse	171.521 / 41.8162					1,517.59	5.27	0.14	1,672.70
Parking Lot	0 / 0					0.00	0.00	0.00	0.00
Parking Structure	0 / 0					0.00	0.00	0.00	0.00
User Defined Parking	0 / 0					0.00	0.00	0.00	0.00
Total						1,517.59	5.27	0.14	1,672.70

Mitigated

	Indoor/Outdoor Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	tons/yr				MT/yr			
Apartments High Rise	0 / 0					0.00	0.00	0.00	0.00
Apartments Mid Rise	0 / 0					0.00	0.00	0.00	0.00
Condo/Townhouse	171.521 / 41.8162					1,517.59	5.27	0.14	1,672.70
Parking Lot	0 / 0					0.00	0.00	0.00	0.00
Parking Structure	0 / 0					0.00	0.00	0.00	0.00
User Defined Parking	0 / 0					0.00	0.00	0.00	0.00
Total						1,517.59	5.27	0.14	1,672.70

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
	tons/yr				MT/yr			
Mitigated					282.62	16.70	0.00	633.38
Unmitigated					554.17	32.75	0.00	1,241.92
Total	NA	NA	NA	NA	NA	NA	NA	NA

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	tons	tons/yr				MT/yr			
Apartments High Rise	0					0.00	0.00	0.00	0.00
Apartments Mid Rise	0					0.00	0.00	0.00	0.00
Condo/Townhouse	2730					554.17	32.75	0.00	1,241.92
Parking Lot	0					0.00	0.00	0.00	0.00
Parking Structure	0					0.00	0.00	0.00	0.00
User Defined Parking	0					0.00	0.00	0.00	0.00
Total						554.17	32.75	0.00	1,241.92

Mitigated

	Waste Disposed	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e

Land Use	tons	tons/yr				MT/yr			
Apartments High Rise	0					0.00	0.00	0.00	0.00
Apartments Mid Rise	0					0.00	0.00	0.00	0.00
Condo/Townhouse	1392.3					282.62	16.70	0.00	633.38
Parking Lot	0					0.00	0.00	0.00	0.00
Parking Structure	0					0.00	0.00	0.00	0.00
User Defined Parking	0					0.00	0.00	0.00	0.00
Total						**282.62**	**16.70**	**0.00**	**633.38**

9.0 Vegetation

NBCU Project - SCE 33% RPS, growth only

Los Angeles-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
General Office Building	422.33	1000sqft
General Office Building	495.41	1000sqft
Day-Care Center	15	1000sqft
General Light Industry	145.66	1000sqft
Refrigerated Warehouse-No Rail	307.95	1000sqft
Hotel	500	Room
Regional Shopping Center	39.22	1000sqft

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Utility Company**	Southern California Edison
Climate Zone	12	**Precipitation Freq (Days)**	33		

1.3 User Entered Comments

Project Characteristics - CO2 intensity factor accounts for 33% RPS.

Land Use - Based on CTG report.

Vehicle Trips - trip rates based on traffic analysis

Woodstoves -

Consumer Products - CTG did not estimate area sources.

Area Coating - CTG did not estimate area sources.

Landscape Equipment -

Energy Use - Historical data selected to reflect use of Title 24-2005.

Water And Wastewater - Water set to reflect DEIR.
Electricity intensity obtained from Appendix Q, Page 23.

Solid Waste - Waste generation set to reflect DEIR.

Land Use Change -

Sequestration - weighted number of trees = number * (1-cumulative mortality) * (% full maturity)

Energy Mitigation -

Water Mitigation - No water mitigation.

Waste Mitigation -

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2011											0.00	1,675.27	1,675.27	0.14	0.00	1,678.30
2012											0.00	2,495.84	2,495.84	0.16	0.00	2,499.20
2013											0.00	2,479.34	2,479.34	0.15	0.00	2,482.41
2014											0.00	1,192.81	1,192.81	0.07	0.00	1,194.36
Total											0.00	7,843.26	7,843.26	0.52	0.00	7,854.27

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Year	tons/yr										MT/yr					
2011											0.00	1,675.27	1,675.27	0.14	0.00	1,678.30
2012											0.00	2,495.84	2,495.84	0.16	0.00	2,499.20
2013											0.00	2,479.34	2,479.34	0.15	0.00	2,482.41
2014											0.00	1,192.81	1,192.81	0.07	0.00	1,194.36
Total											0.00	7,843.26	7,843.26	0.52	0.00	7,854.27

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area											0.00	0.00	0.00	0.00	0.00	0.00
Energy											0.00	7,174.64	7,174.64	0.37	0.16	7,230.69
Mobile											0.00	2,538.46	2,538.46	0.10	0.00	2,540.55
Waste											893.77	0.00	893.77	52.82	0.00	2,002.99
Water											0.00	432.71	432.71	3.60	0.10	538.71
Total											893.77	10,145.81	11,039.58	56.89	0.26	12,312.94

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area											0.00	0.00	0.00	0.00	0.00	0.00
Energy											0.00	6,722.84	6,722.84	0.35	0.15	6,775.57
Mobile											0.00	2,538.46	2,538.46	0.10	0.00	2,540.55
Waste											312.82	0.00	312.82	18.49	0.00	701.05
Water											0.00	432.71	432.71	3.60	0.10	538.71
Total											312.82	9,694.01	10,006.83	22.54	0.25	10,555.88

2.3 Vegetation

Vegetation

	ROG	NOx	CO	SO2	CO2e
Category	tons				MT
New Trees					80.01
Total					80.01

3.0 Construction Detail

3.1 Mitigation Measures Construction

3.2 Demolition - 2011

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	170.30	170.30	0.02	0.00	170.72
Total											0.00	170.30	170.30	0.02	0.00	170.72

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	4.31	4.31	0.00	0.00	4.32
Total											**0.00**	**4.31**	**4.31**	**0.00**	**0.00**	**4.32**

<u>Mitigated Construction On-Site</u>

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	170.30	170.30	0.02	0.00	170.72
Total											**0.00**	**170.30**	**170.30**	**0.02**	**0.00**	**170.72**

<u>Mitigated Construction Off-Site</u>

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	4.31	4.31	0.00	0.00	4.32
Total											**0.00**	**4.31**	**4.31**	**0.00**	**0.00**	**4.32**

3.3 Site Preparation - 2011

<u>Unmitigated Construction On-Site</u>

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.00	0.00	0.00	0.00	0.00	0.00
Off-Road											0.00	108.80	108.80	0.01	0.00	109.08
Total											**0.00**	**108.80**	**108.80**	**0.01**	**0.00**	**109.08**

<u>Unmitigated Construction Off-Site</u>

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	3.10	3.10	0.00	0.00	3.11
Total											**0.00**	**3.10**	**3.10**	**0.00**	**0.00**	**3.11**

<u>Mitigated Construction On-Site</u>

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.00	0.00	0.00	0.00	0.00	0.00
Off-Road											0.00	108.80	108.80	0.01	0.00	109.08
Total											**0.00**	**108.80**	**108.80**	**0.01**	**0.00**	**109.08**

<u>Mitigated Construction Off-Site</u>

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	3.10	3.10	0.00	0.00	3.11
Total											0.00	3.10	3.10	0.00	0.00	3.11

3.4 Grading - 2011

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.00	0.00	0.00	0.00	0.00	0.00
Off-Road											0.00	369.24	369.24	0.04	0.00	370.08
Total											0.00	369.24	369.24	0.04	0.00	370.08

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	8.62	8.62	0.00	0.00	8.63
Total											0.00	8.62	8.62	0.00	0.00	8.63

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.00	0.00	0.00	0.00	0.00	0.00
Off-Road											0.00	369.24	369.24	0.04	0.00	370.08
Total											0.00	369.24	369.24	0.04	0.00	370.08

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	8.62	8.62	0.00	0.00	8.63
Total											0.00	8.62	8.62	0.00	0.00	8.63

3.5 Building Construction - 2011

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	192.39	192.39	0.03	0.00	192.94
Total											0.00	192.39	192.39	0.03	0.00	192.94

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

Hauling										0.00	0.00	0.00	0.00	0.00	0.00
Vendor										0.00	401.02	401.02	0.02	0.00	401.34
Worker										0.00	417.49	417.49	0.03	0.00	418.09
Total										0.00	818.51	818.51	0.05	0.00	819.43

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	192.39	192.39	0.03	0.00	192.94
Total											0.00	192.39	192.39	0.03	0.00	192.94

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	401.02	401.02	0.02	0.00	401.34
Worker											0.00	417.49	417.49	0.03	0.00	418.09
Total											0.00	818.51	818.51	0.05	0.00	819.43

3.5 Building Construction - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	478.23	478.23	0.06	0.00	479.48
Total											0.00	478.23	478.23	0.06	0.00	479.48

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	999.80	999.80	0.03	0.00	1,000.51
Worker											0.00	1,017.81	1,017.81	0.07	0.00	1,019.20
Total											0.00	2,017.61	2,017.61	0.10	0.00	2,019.71

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	478.23	478.23	0.06	0.00	479.48
Total											0.00	478.23	478.23	0.06	0.00	479.48

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	999.80	999.80	0.03	0.00	1,000.51

Worker											0.00	1,017.81	1,017.81	0.07	0.00	1,019.20
Total											0.00	2,017.61	2,017.61	0.10	0.00	2,019.71

3.5 Building Construction - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	478.23	478.23	0.05	0.00	479.38
Total											0.00	478.23	478.23	0.05	0.00	479.38

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	1,002.89	1,002.89	0.03	0.00	1,003.53
Worker											0.00	998.22	998.22	0.06	0.00	999.51
Total											0.00	2,001.11	2,001.11	0.09	0.00	2,003.04

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	478.23	478.23	0.05	0.00	479.38
Total											0.00	478.23	478.23	0.05	0.00	479.38

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	1,002.89	1,002.89	0.03	0.00	1,003.53
Worker											0.00	998.22	998.22	0.06	0.00	999.51
Total											0.00	2,001.11	2,001.11	0.09	0.00	2,003.04

3.5 Building Construction - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	207.05	207.05	0.02	0.00	207.50
Total											0.00	207.05	207.05	0.02	0.00	207.50

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	435.03	435.03	0.01	0.00	435.28
Worker											0.00	425.19	425.19	0.02	0.00	425.71
Total											0.00	860.22	860.22	0.03	0.00	860.99

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	207.05	207.05	0.02	0.00	207.50
Total											0.00	207.05	207.05	0.02	0.00	207.50

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	435.03	435.03	0.01	0.00	435.28
Worker											0.00	425.19	425.19	0.02	0.00	425.71
Total											0.00	860.22	860.22	0.03	0.00	860.99

3.6 Paving - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	72.77	72.77	0.01	0.00	73.01
Paving											0.00	0.00	0.00	0.00	0.00	0.00
Total											0.00	72.77	72.77	0.01	0.00	73.01

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	4.49	4.49	0.00	0.00	4.49
Total											0.00	4.49	4.49	0.00	0.00	4.49

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	72.77	72.77	0.01	0.00	73.01
Paving											0.00	0.00	0.00	0.00	0.00	0.00
Total											0.00	72.77	72.77	0.01	0.00	73.01

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	4.49	4.49	0.00	0.00	4.49
Total											0.00	4.49	4.49	0.00	0.00	4.49

3.7 Architectural Coating - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.00	0.00	0.00	0.00	0.00	0.00
Off-Road											0.00	7.01	7.01	0.00	0.00	7.03
Total											0.00	7.01	7.01	0.00	0.00	7.03

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	41.27	41.27	0.00	0.00	41.32
Total											0.00	41.27	41.27	0.00	0.00	41.32

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.00	0.00	0.00	0.00	0.00	0.00
Off-Road											0.00	7.01	7.01	0.00	0.00	7.03
Total											0.00	7.01	7.01	0.00	0.00	7.03

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	41.27	41.27	0.00	0.00	41.32
Total											0.00	41.27	41.27	0.00	0.00	41.32

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated											0.00	2,538.46	2,538.46	0.10	0.00	2,540.55
Unmitigated											0.00	2,538.46	2,538.46	0.10	0.00	2,540.55
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT

Day-Care Center	3.00	3.00	3.00	3,450	3,450
General Light Industry	104.88	104.88	104.88	263,538	263,538
General Office Building	536.36	536.36	536.36	1,181,853	1,181,853
General Office Building	629.17	629.17	629.17	1,386,361	1,386,361
Hotel	655.00	655.00	655.00	1,191,862	1,191,862
Refrigerated Warehouse-No Rail	711.36	711.36	711.36	1,787,569	1,787,569
Regional Shopping Center	31.38	31.38	31.38	53,158	53,158
Total	2,671.15	2,671.15	2,671.15	5,867,792	5,867,792

4.3 Trip Type Information

	Miles			Trip %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
Day-Care Center	8.90	13.30	7.40	0.00	0.00	100.00
General Light Industry	8.90	13.30	7.40	0.00	0.00	100.00
General Office Building	8.90	13.30	7.40	0.00	0.00	100.00
General Office Building	8.90	13.30	7.40	0.00	0.00	100.00
Hotel	8.90	13.30	7.40	0.00	0.00	100.00
Refrigerated Warehouse-No Rail	8.90	13.30	7.40	0.00	0.00	100.00
Regional Shopping Center	8.90	13.30	7.40	0.00	0.00	100.00

5.0 Energy Detail

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated											0.00	5,495.75	5,495.75	0.33	0.12	5,541.01
Electricity Unmitigated											0.00	5,758.28	5,758.28	0.34	0.13	5,805.71
NaturalGas Mitigated											0.00	1,227.09	1,227.09	0.02	0.02	1,234.56
NaturalGas Unmitigated											0.00	1,416.36	1,416.36	0.03	0.03	1,424.98
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	tons/yr										MT/yr					
Day-Care Center	176850											0.00	9.44	9.44	0.00	0.00	9.49
General Light Industry	2.88397e+006											0.00	153.90	153.90	0.00	0.00	154.84
General Office Building	5.25374e+006											0.00	280.36	280.36	0.01	0.01	282.07
General Office Building	6.16285e+006											0.00	328.87	328.87	0.01	0.01	330.87
Hotel	1.16325e+007											0.00	620.75	620.75	0.01	0.01	624.53
Refrigerated Warehouse-No Rail	360300											0.00	19.23	19.23	0.00	0.00	19.34
Regional Shopping Center	71373.1											0.00	3.81	3.81	0.00	0.00	3.83
Total												0.00	1,416.36	1,416.36	0.03	0.03	1,424.97

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	tons/yr										MT/yr					
Day-Care Center	152753											0.00	8.15	8.15	0.00	0.00	8.20
General Light Industry	2.5486e+006											0.00	136.00	136.00	0.00	0.00	136.83
General Office Building	4.49038e+006											0.00	239.62	239.62	0.00	0.00	241.08
General Office Building	5.2674e+006											0.00	281.09	281.09	0.01	0.01	282.80
Hotel	1.01617e+007											0.00	542.27	542.27	0.01	0.01	545.57

Refrigerated Warehouse-No Rail	310413											0.00	16.56	16.56	0.00	0.00	16.67
Regional Shopping Center	63549.5											0.00	3.39	3.39	0.00	0.00	3.41
Total												0.00	1,227.08	1,227.08	0.02	0.02	1,234.56

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	kWh	tons/yr				MT/yr			
Day-Care Center	106200					23.51	0.00	0.00	23.70
General Light Industry	1.82651e+006					404.30	0.02	0.01	407.63
General Office Building	6.43625e+006					1,424.68	0.08	0.03	1,436.42
General Office Building	7.54999e+006					1,671.21	0.10	0.04	1,684.98
Hotel	4.077e+006					902.46	0.05	0.02	909.89
Refrigerated Warehouse-No Rail	5.39219e+006					1,193.58	0.07	0.03	1,203.41
Regional Shopping Center	625887					138.54	0.01	0.00	139.68
Total						5,758.28	0.33	0.13	5,805.71

Mitigated

	Electricity Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	kWh	tons/yr				MT/yr			
Day-Care Center	101048					22.37	0.00	0.00	22.55
General Light Industry	1.76228e+006					390.09	0.02	0.01	393.30
General Office Building	6.05679e+006					1,340.69	0.08	0.03	1,351.73
General Office Building	7.10487e+006					1,572.68	0.09	0.04	1,585.64
Hotel	3.84075e+006					850.16	0.05	0.02	857.16
Refrigerated Warehouse-No Rail	5.36678e+006					1,187.95	0.07	0.03	1,197.74
Regional Shopping Center	595475					131.81	0.01	0.00	132.90
Total						5,495.75	0.32	0.13	5,541.02

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated											0.00	0.00	0.00	0.00	0.00	0.00
Unmitigated											0.00	0.00	0.00	0.00	0.00	0.00
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating											0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products											0.00	0.00	0.00	0.00	0.00	0.00
Landscaping											0.00	0.00	0.00	0.00	0.00	0.00
Total											0.00	0.00	0.00	0.00	0.00	0.00

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating											0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products											0.00	0.00	0.00	0.00	0.00	0.00
Landscaping											0.00	0.00	0.00	0.00	0.00	0.00
Total											0.00	0.00	0.00	0.00	0.00	0.00

7.0 Water Detail

7.1 Mitigation Measures Water

	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr				MT/yr			
Mitigated					432.71	3.60	0.10	538.71
Unmitigated					432.71	3.60	0.10	538.71
Total	NA	NA	NA	NA	NA	NA	NA	NA

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	tons/yr				MT/yr			
Day-Care Center	0.12848 / 0					0.37	0.00	0.00	0.49
General Light Industry	8.42122 / 0					24.37	0.26	0.01	31.94
General Office Building	53.6375 / 0					155.20	1.65	0.04	203.44
Hotel	41.756 / 38.2987					215.00	1.29	0.04	253.34
Refrigerated Warehouse-No Rail	7.91308 / 0					22.90	0.24	0.01	30.01
Regional Shopping Center	5.1392 / 0					14.87	0.16	0.00	19.49
Total						432.71	3.60	0.10	538.71

Mitigated

	Indoor/Outdoor Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	tons/yr				MT/yr			
Day-Care Center	0.12848 / 0					0.37	0.00	0.00	0.49
General Light Industry	8.42122 / 0					24.37	0.26	0.01	31.94
General Office Building	53.6375 / 0					155.20	1.65	0.04	203.44
Hotel	41.756 / 38.2987					215.00	1.29	0.04	253.34
Refrigerated Warehouse-No Rail	7.91308 / 0					22.90	0.24	0.01	30.01
Regional Shopping Center	5.1392 / 0					14.87	0.16	0.00	19.49
Total						432.71	3.60	0.10	538.71

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
	tons/yr				MT/yr			
Mitigated					312.82	18.49	0.00	701.05
Unmitigated					893.77	52.82	0.00	2,002.99
Total	NA	NA	NA	NA	NA	NA	NA	NA

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	tons	tons/yr				MT/yr			
Day-Care Center	11					2.23	0.13	0.00	5.00
General Light Industry	975					197.92	11.70	0.00	443.54
General Office Building	920					186.75	11.04	0.00	418.52
Hotel	1281					260.03	15.37	0.00	582.75
Refrigerated Warehouse-No Rail	880					178.63	10.56	0.00	400.33
Regional Shopping Center	336					68.20	4.03	0.00	152.85
Total						893.76	52.83	0.00	2,002.99

Mitigated

	Waste Disposed	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	tons	tons/yr				MT/yr			
Day-Care Center	3.85					0.78	0.05	0.00	1.75
General Light Industry	341.25					69.27	4.09	0.00	155.24
General Office Building	322					65.36	3.86	0.00	146.48
Hotel	448.35					91.01	5.38	0.00	203.96
Refrigerated Warehouse-No Rail	308					62.52	3.69	0.00	140.11
Regional Shopping Center	117.6					23.87	1.41	0.00	53.50
Total						312.81	18.48	0.00	701.04

9.0 Vegetation

	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Category	tons				MT			
Unmitigated					80.01	0.00	0.00	80.01
Total	NA	NA	NA	NA	NA	NA	NA	NA

9.1 Net New Trees

Species Class

	Number of Trees	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
		tons				MT			
Mixed Hardwood	109					80.01	0.00	0.00	80.01
Total						80.01	0.00	0.00	80.01

NBCU Project LADWP - 33% RPS, growth only

Los Angeles-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
General Office Building	0	1000sqft
Refrigerated Warehouse-No Rail	0	1000sqft
Health Club	65	1000sqft
High Turnover (Sit Down Restaurant)	46	1000sqft
Recreational Swimming Pool	1.11	1000sqft
Strip Mall	69	1000sqft

1.2 Other Project Characteristics

Urbanization Urban **Wind Speed (m/s)** 2.2 **Utility Company** Los Angeles Department of Water & Power

Climate Zone 12 **Precipitation Freq (Days)** 33

1.3 User Entered Comments

Project Characteristics - CO2 intensity factor accounts for 33% RPS.

Land Use - set unit amount to reflect net area

Vehicle Trips - trip rate based on trips from traffic analysis

Woodstoves - CTG did not estimate area sources, so all are set to 0.

Consumer Products - CTG did not estimate area sources, so all are set to 0.

Area Coating - CTG did not estimate area sources, so all are set to 0.

Landscape Equipment - CTG did not estimate area sources, so all are set to 0.

Energy Use - Historical Data checkbox selected to reflect use of Title 24-2005. Swimming pool natural gas calculated separately.

Water And Wastewater - Water use set based on information in the DEIR.

Solid Waste - Solid waste generation set to reflect DEIR.

Energy Mitigation -

Water Mitigation -

Waste Mitigation -

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2011											0.00	698.84	698.84	0.08	0.00	700.49
2012											0.00	33.13	33.13	0.00	0.00	33.23
Total											0.00	731.97	731.97	0.08	0.00	733.72

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2011											0.00	698.84	698.84	0.08	0.00	700.49
2012											0.00	33.13	33.13	0.00	0.00	33.23
Total											0.00	731.97	731.97	0.08	0.00	733.72

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area											0.00	0.00	0.00	0.00	0.00	0.00
Energy											0.00	3,004.45	3,004.45	0.08	0.04	3,019.53
Mobile											0.00	252.35	252.35	0.01	0.00	252.57
Waste											157.93	0.00	157.93	9.33	0.00	353.92
Water											0.00	131.37	131.37	0.72	0.02	152.58
Total											**157.93**	**3,388.17**	**3,546.10**	**10.14**	**0.06**	**3,778.60**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area											0.00	0.00	0.00	0.00	0.00	0.00
Energy											0.00	2,824.46	2,824.46	0.07	0.04	2,838.56
Mobile											0.00	252.35	252.35	0.01	0.00	252.57
Waste											55.27	0.00	55.27	3.27	0.00	123.87
Water											0.00	131.37	131.37	0.72	0.02	152.58
Total											**55.27**	**3,208.18**	**3,263.45**	**4.07**	**0.06**	**3,367.58**

3.0 Construction Detail

3.1 Mitigation Measures Construction

3.2 Demolition - 2011

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	68.12	68.12	0.01	0.00	68.29
Total											**0.00**	**68.12**	**68.12**	**0.01**	**0.00**	**68.29**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	1.72	1.72	0.00	0.00	1.73
Total											**0.00**	**1.72**	**1.72**	**0.00**	**0.00**	**1.73**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	68.12	68.12	0.01	0.00	68.29
Total											0.00	68.12	68.12	0.01	0.00	68.29

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	1.72	1.72	0.00	0.00	1.73
Total											0.00	1.72	1.72	0.00	0.00	1.73

3.3 Site Preparation - 2011

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.00	0.00	0.00	0.00	0.00	0.00
Off-Road											0.00	18.13	18.13	0.00	0.00	18.18
Total											0.00	18.13	18.13	0.00	0.00	18.18

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	0.52	0.52	0.00	0.00	0.52
Total											0.00	0.52	0.52	0.00	0.00	0.52

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.00	0.00	0.00	0.00	0.00	0.00
Off-Road											0.00	18.13	18.13	0.00	0.00	18.18
Total											0.00	18.13	18.13	0.00	0.00	18.18

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	0.52	0.52	0.00	0.00	0.52
Total											0.00	0.52	0.52	0.00	0.00	0.52

3.4 Grading - 2011

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.00	0.00	0.00	0.00	0.00	0.00
Off-Road											0.00	19.01	19.01	0.00	0.00	19.06
Total											**0.00**	**19.01**	**19.01**	**0.00**	**0.00**	**19.06**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	0.69	0.69	0.00	0.00	0.69
Total											**0.00**	**0.69**	**0.69**	**0.00**	**0.00**	**0.69**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.00	0.00	0.00	0.00	0.00	0.00
Off-Road											0.00	19.01	19.01	0.00	0.00	19.06
Total											**0.00**	**19.01**	**19.01**	**0.00**	**0.00**	**19.06**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	0.69	0.69	0.00	0.00	0.69
Total											**0.00**	**0.69**	**0.69**	**0.00**	**0.00**	**0.69**

3.5 Building Construction - 2011

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	415.93	415.93	0.06	0.00	417.11
Total											**0.00**	**415.93**	**415.93**	**0.06**	**0.00**	**417.11**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	84.72	84.72	0.00	0.00	84.79
Worker											0.00	90.00	90.00	0.01	0.00	90.13
Total											**0.00**	**174.72**	**174.72**	**0.01**	**0.00**	**174.92**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	tons/yr										MT/yr					
Off-Road											0.00	415.93	415.93	0.06	0.00	417.11
Total											0.00	415.93	415.93	0.06	0.00	417.11

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	84.72	84.72	0.00	0.00	84.79
Worker											0.00	90.00	90.00	0.01	0.00	90.13
Total											0.00	174.72	174.72	0.01	0.00	174.92

3.5 Building Construction - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	5.50	5.50	0.00	0.00	5.51
Total											0.00	5.50	5.50	0.00	0.00	5.51

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	1.12	1.12	0.00	0.00	1.12
Worker											0.00	1.17	1.17	0.00	0.00	1.17
Total											0.00	2.29	2.29	0.00	0.00	2.29

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	5.50	5.50	0.00	0.00	5.51
Total											0.00	5.50	5.50	0.00	0.00	5.51

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	1.12	1.12	0.00	0.00	1.12
Worker											0.00	1.17	1.17	0.00	0.00	1.17
Total											0.00	2.29	2.29	0.00	0.00	2.29

3.6 Paving - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	19.60	19.60	0.00	0.00	19.67

Paving											0.00	0.00	0.00	0.00	0.00	0.00
Total											0.00	19.60	19.60	0.00	0.00	19.67

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	2.03	2.03	0.00	0.00	2.03
Total											0.00	2.03	2.03	0.00	0.00	2.03

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	19.60	19.60	0.00	0.00	19.67
Paving											0.00	0.00	0.00	0.00	0.00	0.00
Total											0.00	19.60	19.60	0.00	0.00	19.67

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	2.03	2.03	0.00	0.00	2.03
Total											0.00	2.03	2.03	0.00	0.00	2.03

3.7 Architectural Coating - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.00	0.00	0.00	0.00	0.00	0.00
Off-Road											0.00	2.30	2.30	0.00	0.00	2.30
Total											0.00	2.30	2.30	0.00	0.00	2.30

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	1.42	1.42	0.00	0.00	1.42
Total											0.00	1.42	1.42	0.00	0.00	1.42

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.00	0.00	0.00	0.00	0.00	0.00
Off-Road											0.00	2.30	2.30	0.00	0.00	2.30

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Total											0.00	2.30	2.30	0.00	0.00	2.30

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	1.42	1.42	0.00	0.00	1.42
Total											0.00	1.42	1.42	0.00	0.00	1.42

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated											0.00	252.35	252.35	0.01	0.00	252.57
Unmitigated											0.00	252.35	252.35	0.01	0.00	252.57
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Office Building	0.00	0.00	0.00		
Health Club	141.05	141.05	141.05	235,070	235,070
High Turnover (Sit Down Restaurant)	99.82	99.82	99.82	114,490	114,490
Recreational Swimming Pool	0.00	0.00	0.00		
Refrigerated Warehouse-No Rail	0.00	0.00	0.00		
Strip Mall	149.73	149.73	149.73	222,640	222,640
Total	390.60	390.60	390.60	572,200	572,200

4.3 Trip Type Information

	Miles			Trip %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
General Office Building	8.90	13.30	7.40	0.00	0.00	100.00
Health Club	8.90	13.30	7.40	0.00	0.00	100.00
High Turnover (Sit Down Restaurant)	8.90	13.30	7.40	0.00	0.00	100.00
Recreational Swimming Pool	8.90	13.30	7.40	0.00	0.00	100.00
Refrigerated Warehouse-No Rail	8.90	13.30	7.40	0.00	0.00	100.00
Strip Mall	8.90	13.30	7.40	0.00	0.00	100.00

5.0 Energy Detail

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	tons/yr										MT/yr					
Electricity Mitigated											0.00	1,700.62	1,700.62	0.05	0.02	1,707.88
Electricity Unmitigated											0.00	1,766.68	1,766.68	0.05	0.02	1,774.22
NaturalGas Mitigated											0.00	1,123.84	1,123.84	0.02	0.02	1,130.68
NaturalGas Unmitigated											0.00	1,237.78	1,237.78	0.02	0.02	1,245.31
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	tons/yr										MT/yr					
General Office Building	0											0.00	0.00	0.00	0.00	0.00	0.00
Health Club	1.287e+006											0.00	68.68	68.68	0.00	0.00	69.10
High Turnover (Sit Down Restaurant)	1.07801e+007											0.00	575.27	575.27	0.01	0.01	578.77
Recreational Swimming Pool	1.10024e+007											0.00	587.13	587.13	0.01	0.01	590.70
Refrigerated Warehouse-No Rail	0											0.00	0.00	0.00	0.00	0.00	0.00
Strip Mall	125580											0.00	6.70	6.70	0.00	0.00	6.74
Total												**0.00**	**1,237.78**	**1,237.78**	**0.02**	**0.02**	**1,245.31**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	tons/yr										MT/yr					
General Office Building	0											0.00	0.00	0.00	0.00	0.00	0.00
Health Club	1.13734e+006											0.00	60.69	60.69	0.00	0.00	61.06
High Turnover (Sit Down Restaurant)	1.04588e+007											0.00	558.12	558.12	0.01	0.01	561.52
Recreational Swimming Pool	9.35204e+006											0.00	499.06	499.06	0.01	0.01	502.10
Refrigerated Warehouse-No Rail	0											0.00	0.00	0.00	0.00	0.00	0.00
Strip Mall	111815											0.00	5.97	5.97	0.00	0.00	6.00
Total												**0.00**	**1,123.84**	**1,123.84**	**0.02**	**0.02**	**1,130.68**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	kWh	tons/yr				MT/yr			
General Office Building	0					0.00	0.00	0.00	0.00
Health Club	815100					347.91	0.01	0.00	349.40
High Turnover (Sit Down Restaurant)	2.22272e+006					948.72	0.03	0.01	952.78
Recreational Swimming Pool	0					0.00	0.00	0.00	0.00
Refrigerated Warehouse-No Rail	0					0.00	0.00	0.00	0.00
Strip Mall	1.10124e+006					470.04	0.01	0.01	472.05
Total						**1,766.67**	**0.05**	**0.02**	**1,774.23**

Mitigated

	Electricity Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	kWh	tons/yr				MT/yr			
General Office Building	0					0.00	0.00	0.00	0.00
Health Club	786435					335.67	0.01	0.00	337.11
High Turnover (Sit Down Restaurant)	2.15013e+006					917.74	0.03	0.01	921.66
Recreational Swimming Pool	0					0.00	0.00	0.00	0.00
Refrigerated Warehouse-No Rail	0					0.00	0.00	0.00	0.00
Strip Mall	1.04773e+006					447.20	0.01	0.01	449.11

Total						1,700.61	0.05	0.02	1,707.88

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated											0.00	0.00	0.00	0.00	0.00	0.00
Unmitigated											0.00	0.00	0.00	0.00	0.00	0.00
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating											0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products											0.00	0.00	0.00	0.00	0.00	0.00
Landscaping											0.00	0.00	0.00	0.00	0.00	0.00
Total											0.00	0.00	0.00	0.00	0.00	0.00

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating											0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products											0.00	0.00	0.00	0.00	0.00	0.00
Landscaping											0.00	0.00	0.00	0.00	0.00	0.00
Total											0.00	0.00	0.00	0.00	0.00	0.00

7.0 Water Detail

7.1 Mitigation Measures Water

	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr				MT/yr			
Mitigated					131.37	0.72	0.02	152.58
Unmitigated					131.37	0.72	0.02	152.58
Total	NA	NA	NA	NA	NA	NA	NA	NA

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	tons/yr				MT/yr			
General Office Building	0 / 0					0.00	0.00	0.00	0.00

Health Club	8.51822 / 0					47.44	0.26	0.01	55.10
High Turnover (Sit Down Restaurant)	0 / 0					0.00	0.00	0.00	0.00
Recreational Swimming Pool	0 / 0					0.00	0.00	0.00	0.00
Refrigerated Warehouse-No Rail	0 / 0					0.00	0.00	0.00	0.00
Strip Mall	15.0707 / 0					83.93	0.46	0.01	97.48
Total						**131.37**	**0.72**	**0.02**	**152.58**

Mitigated

	Indoor/Outdoor Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	tons/yr				MT/yr			
General Office Building	0 / 0					0.00	0.00	0.00	0.00
Health Club	8.51822 / 0					47.44	0.26	0.01	55.10
High Turnover (Sit Down Restaurant)	0 / 0					0.00	0.00	0.00	0.00
Recreational Swimming Pool	0 / 0					0.00	0.00	0.00	0.00
Refrigerated Warehouse-No Rail	0 / 0					0.00	0.00	0.00	0.00
Strip Mall	15.0707 / 0					83.93	0.46	0.01	97.48
Total						**131.37**	**0.72**	**0.02**	**152.58**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
	tons/yr				MT/yr			
Mitigated					55.27	3.27	0.00	123.67
Unmitigated					157.93	9.33	0.00	353.92
Total	NA	NA	NA	NA	NA	NA	NA	NA

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	tons	tons/yr				MT/yr			
General Office Building	0					0.00	0.00	0.00	0.00
Health Club	179					36.34	2.15	0.00	81.43
High Turnover (Sit Down Restaurant)	0					0.00	0.00	0.00	0.00
Recreational Swimming Pool	0					0.00	0.00	0.00	0.00
Refrigerated Warehouse-No Rail	0					0.00	0.00	0.00	0.00
Strip Mall	599					121.59	7.19	0.00	272.49
Total						**157.93**	**9.34**	**0.00**	**353.92**

Mitigated

	Waste Disposed	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	tons	tons/yr				MT/yr			
General Office Building	0					0.00	0.00	0.00	0.00
Health Club	62.65					12.72	0.75	0.00	28.50
High Turnover (Sit Down Restaurant)	0					0.00	0.00	0.00	0.00
Recreational Swimming Pool	0					0.00	0.00	0.00	0.00

Refrigerated Warehouse-No Rail	0					0.00	0.00	0.00	0.00
Strip Mall	209.65					42.56	2.52	0.00	95.37
Total						55.28	3.27	0.00	123.87

9.0 Vegetation

NBCU Project Residential 33% RPS, growth only, green power

Los Angeles-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
Parking Lot	1422.1	1000sqft
Parking Structure	2597.9	1000sqft
User Defined Parking	649.28	User Defined Unit
Apartments High Rise	340	Dwelling Unit
Apartments Mid Rise	340	Dwelling Unit
Condo/Townhouse	2257	Dwelling Unit

1.2 Other Project Characteristics

Urbanization Urban

Climate Zone 12

Wind Speed (m/s) 2.2

Precipitation Freq (Days) 33

Utility Company Los Angeles Department of Water & Power

1.3 User Entered Comments

Project Characteristics - The CO2 intensity factor was modified to account for 33% RPS. The CH4 and N2O intensity factors were left unchanged as there were no data supporting modifications.

Land Use - Values from DEIR.

Vehicle Trips - Based on transportation study.

Woodstoves - CTG did not estimate emissions from area sources, thus we are setting all area sources to 0.

Consumer Products - CTG did not estimate emissions from area sources, thus we are setting all area sources to 0.

Area Coating - CTG did not estimate emissions from area sources, thus we are setting all area sources to 0.

Landscape Equipment - CTG did not estimate emissions from area sources, thus we are setting all area sources to 0.

Energy Use - Checked historical data box to use Title 24 - 2005, as opposed to Title 24 - 2008 that the model uses by default. Based parking lighting intensity on CTG Report.

Water And Wastewater - Water demand changed to match DEIR.
Electricity intensity obtained from Appendix Q, Page 23.

Solid Waste - Solid waste generation changed to reflect DEIR.

Energy Mitigation -

Water Mitigation -

Waste Mitigation -

2.0 Emissions Summary

2.1 Overall Construction

__Unmitigated Construction__

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2011											0.00	907.95	907.95	0.11	0.00	910.16
2012											0.00	1,017.15	1,017.15	0.11	0.00	1,019.54
2013											0.00	1,313.79	1,313.79	0.13	0.00	1,316.46
2014											0.00	4,497.78	4,497.78	0.26	0.00	4,503.18
2015											0.00	9,686.34	9,686.34	0.45	0.00	9,695.78
2016											0.00	9,611.29	9,611.29	0.42	0.00	9,620.11
2017											0.00	9,469.89	9,469.89	0.39	0.00	9,478.06
2018											0.00	9,404.65	9,404.65	0.36	0.00	9,412.29
2019											0.00	9,308.69	9,308.69	0.34	0.00	9,315.83
2020											0.00	9,253.01	9,253.01	0.32	0.00	9,259.75
2021											0.00	9,167.07	9,167.07	0.30	0.00	9,173.44
2022											0.00	9,051.82	9,051.82	0.29	0.00	9,057.84

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
2023											0.00	8,976.27	8,976.27	0.27	0.00	8,982.00
2024											0.00	8,961.57	8,961.57	0.26	0.00	8,967.04
2025											0.00	8,862.12	8,862.12	0.25	0.00	8,867.32
2026											0.00	8,862.12	8,862.12	0.25	0.00	8,867.32
2027											0.00	8,862.12	8,862.12	0.25	0.00	8,867.32
2028											0.00	8,828.16	8,828.16	0.25	0.00	8,833.34
2029											0.00	8,862.12	8,862.12	0.25	0.00	8,867.32
2030											0.00	8,626.21	6,626.21	0.21	0.00	8,630.59
2031											0.00	8,626.21	8,626.21	0.21	0.00	8,630.59
2032											0.00	4,068.05	4,068.05	0.10	0.00	4,070.25
2033											0.00	527.19	527.19	0.02	0.00	527.68
2034											0.00	919.94	919.94	0.03	0.00	920.59
Total											**0.00**	**167,671.51**	**#########**	**5.83**	**0.00**	**167,793.80**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2011											0.00	907.95	907.95	0.11	0.00	910.16
2012											0.00	1,017.15	1,017.15	0.11	0.00	1,019.54
2013											0.00	1,313.79	1,313.79	0.13	0.00	1,316.46
2014											0.00	4,497.78	4,497.78	0.26	0.00	4,503.18
2015											0.00	9,686.34	9,686.34	0.45	0.00	9,695.78
2016											0.00	9,611.29	9,611.29	0.42	0.00	9,620.11
2017											0.00	9,469.89	9,469.89	0.39	0.00	9,478.06
2018											0.00	9,404.65	9,404.65	0.36	0.00	9,412.29
2019											0.00	9,308.69	9,308.69	0.34	0.00	9,315.83
2020											0.00	9,253.01	9,253.01	0.32	0.00	9,259.75
2021											0.00	9,167.07	9,167.07	0.30	0.00	9,173.44
2022											0.00	9,051.82	9,051.82	0.29	0.00	9,057.84
2023											0.00	8,976.27	8,976.27	0.27	0.00	8,982.00
2024											0.00	8,961.57	8,961.57	0.26	0.00	8,967.04
2025											0.00	8,862.12	8,862.12	0.25	0.00	8,867.32
2026											0.00	8,862.12	8,862.12	0.25	0.00	8,867.32
2027											0.00	8,862.12	8,862.12	0.25	0.00	8,867.32
2028											0.00	8,828.16	8,828.16	0.25	0.00	8,833.34
2029											0.00	8,862.12	8,862.12	0.25	0.00	8,867.32
2030											0.00	8,626.21	8,626.21	0.21	0.00	8,630.59
2031											0.00	8,626.21	8,626.21	0.21	0.00	8,630.59
2032											0.00	4,068.05	4,068.05	0.10	0.00	4,070.25
2033											0.00	527.19	527.19	0.02	0.00	527.68
2034											0.00	919.94	919.94	0.03	0.00	920.59
Total											**0.00**	**167,671.51**	**#########**	**5.83**	**0.00**	**167,793.80**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area											311.97	1,871.53	2,183.49	1.02	0.04	2,218.38
Energy											0.00	13,482.39	13,482.39	0.37	0.18	13,546.48
Mobile											0.00	17,723.07	17,723.07	0.67	0.00	17,737.23
Waste											554.17	0.00	554.17	32.75	0.00	1,241.92
Water											0.00	1,038.87	1,038.87	4.64	0.13	1,175.47

Total											866.14	34,115.86	34,981.99	39.45	0.35	35,919.48

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area											311.97	1,871.53	2,183.49	1.02	0.04	2,218.38
Energy											0.00	10,419.06	10,419.06	0.28	0.14	10,469.23
Mobile											0.00	17,723.07	17,723.07	0.67	0.00	17,737.23
Waste											193.96	0.00	193.96	11.46	0.00	434.67
Water											0.00	1,038.87	1,038.87	4.64	0.13	1,175.47
Total											505.93	31,052.53	31,558.45	18.07	0.31	32,034.98

3.0 Construction Detail

3.1 Mitigation Measures Construction

3.2 Demolition - 2011

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	885.54	885.54	0.10	0.00	887.72
Total											0.00	885.54	885.54	0.10	0.00	887.72

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.00	0.00	0.00	0.00	0.00	0.00
Vendor											0.00	0.00	0.00	0.00	0.00	0.00
Worker											0.00	22.41	22.41	0.00	0.00	22.44
Total											0.00	22.41	22.41	0.00	0.00	22.44

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.00	885.54	885.54	0.10	0.00	887.72
Total											0.00	885.54	885.54	0.10	0.00	887.72

Mitigated Construction Off-Site

Electricity Unmitigated											0.00	9,893.32	9,893.32	0.30	0.12	9,935.58
NaturalGas Mitigated											0.00	3,122.53	3,122.53	0.06	0.06	3,141.54
NaturalGas Unmitigated											0.00	3,589.06	3,589.06	0.07	0.07	3,610.90
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	tons/yr										MT/yr					
Apartments High Rise	3.9238e+006											0.00	209.39	209.39	0.00	0.00	210.66
Apartments Mid Rise	3.9238e+006											0.00	209.39	209.39	0.00	0.00	210.66
Condo/Townhouse	5.94089e+007											0.00	3,170.28	3,170.28	0.06	0.06	3,189.58
Parking Lot	0											0.00	0.00	0.00	0.00	0.00	0.00
Parking Structure	0											0.00	0.00	0.00	0.00	0.00	0.00
User Defined Parking	0											0.00	0.00	0.00	0.00	0.00	0.00
Total												**0.00**	**3,589.06**	**3,589.06**	**0.06**	**0.06**	**3,610.90**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	tons/yr										MT/yr					
Apartments High Rise	3.43592e+006											0.00	183.35	183.35	0.00	0.00	184.47
Apartments Mid Rise	3.43592e+006											0.00	183.35	183.35	0.00	0.00	184.47
Condo/Townhouse	5.16422e+007											0.00	2,755.82	2,755.82	0.05	0.05	2,772.60
Parking Lot	0											0.00	0.00	0.00	0.00	0.00	0.00
Parking Structure	0											0.00	0.00	0.00	0.00	0.00	0.00
User Defined Parking	0											0.00	0.00	0.00	0.00	0.00	0.00
Total												**0.00**	**3,122.52**	**3,122.52**	**0.05**	**0.05**	**3,141.54**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	kWh	tons/yr				MT/yr			
Apartments High Rise	1.31796e+006					562.54	0.02	0.01	564.95
Apartments Mid Rise	1.31796e+006					562.54	0.02	0.01	564.95
Condo/Townhouse	1.04992e+007					4,481.37	0.14	0.05	4,500.51
Parking Lot	255978					109.26	0.00	0.00	109.73
Parking Structure	9.53429e+006					4,069.53	0.13	0.05	4,086.91
User Defined Parking	253220					108.08	0.00	0.00	108.54
Total						**9,893.32**	**0.31**	**0.12**	**9,935.59**

Mitigated

	Electricity Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	kWh	tons/yr				MT/yr			
Apartments High Rise	1.02668e+006					438.22	0.01	0.01	440.09
Apartments Mid Rise	1.02668e+006					438.22	0.01	0.01	440.09
Condo/Townhouse	8.21175e+006					3,505.02	0.11	0.04	3,519.99
Parking Lot	174065					74.30	0.00	0.00	74.61
Parking Structure	6.48332e+006					2,767.28	0.09	0.03	2,779.10
User Defined Parking	172189					73.50	0.00	0.00	73.81
Total						**7,296.54**	**0.22**	**0.09**	**7,327.69**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated											311.97	1,871.53	2,183.49	1.02	0.04	2,218.38
Unmitigated											311.97	1,871.53	2,183.49	1.02	0.04	2,218.38
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating											0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products											0.00	0.00	0.00	0.00	0.00	0.00
Hearth											311.97	1,798.47	2,110.44	0.95	0.04	2,143.83
Landscaping											0.00	73.05	73.05	0.07	0.00	74.55
Total											**311.97**	**1,871.52**	**2,183.49**	**1.02**	**0.04**	**2,218.38**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating											0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products											0.00	0.00	0.00	0.00	0.00	0.00
Hearth											311.97	1,798.47	2,110.44	0.95	0.04	2,143.83
Landscaping											0.00	73.05	73.05	0.07	0.00	74.55
Total											**311.97**	**1,871.52**	**2,183.49**	**1.02**	**0.04**	**2,218.38**

7.0 Water Detail

7.1 Mitigation Measures Water

	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr				MT/yr			
Mitigated					1,038.87	4.64	0.13	1,175.47
Unmitigated					1,038.87	4.64	0.13	1,175.47
Total	NA	NA	NA	NA	NA	NA	NA	NA

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	tons/yr				MT/yr			
Apartments High Rise	0 / 0					0.00	0.00	0.00	0.00

Apartments Mid Rise	0 / 0					0.00	0.00	0.00	0.00
Condo/Townhouse	150.938 / 41.8162					1,038.87	4.64	0.13	1,175.47
Parking Lot	0 / 0					0.00	0.00	0.00	0.00
Parking Structure	0 / 0					0.00	0.00	0.00	0.00
User Defined Parking	0 / 0					0.00	0.00	0.00	0.00
Total						1,038.87	4.64	0.13	1,175.47

Mitigated

	Indoor/Outdoor Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	tons/yr				MT/yr			
Apartments High Rise	0 / 0					0.00	0.00	0.00	0.00
Apartments Mid Rise	0 / 0					0.00	0.00	0.00	0.00
Condo/Townhouse	150.938 / 41.8162					1,038.87	4.64	0.13	1,175.47
Parking Lot	0 / 0					0.00	0.00	0.00	0.00
Parking Structure	0 / 0					0.00	0.00	0.00	0.00
User Defined Parking	0 / 0					0.00	0.00	0.00	0.00
Total						1,038.87	4.64	0.13	1,175.47

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
	tons/yr				MT/yr			
Mitigated					193.96	11.46	0.00	434.67
Unmitigated					554.17	32.75	0.00	1,241.92
Total	NA	NA	NA	NA	NA	NA	NA	NA

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	tons	tons/yr				MT/yr			
Apartments High Rise	0					0.00	0.00	0.00	0.00
Apartments Mid Rise	0					0.00	0.00	0.00	0.00
Condo/Townhouse	2730					554.17	32.75	0.00	1,241.92
Parking Lot	0					0.00	0.00	0.00	0.00
Parking Structure	0					0.00	0.00	0.00	0.00
User Defined Parking	0					0.00	0.00	0.00	0.00
Total						554.17	32.75	0.00	1,241.92

Mitigated

	Waste Disposed	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	tons	tons/yr				MT/yr			
Apartments High Rise	0					0.00	0.00	0.00	0.00
Apartments Mid Rise	0					0.00	0.00	0.00	0.00
Condo/Townhouse	955.5					193.96	11.46	0.00	434.67
Parking Lot	0					0.00	0.00	0.00	0.00

Parking Structure	0					0.00	0.00	0.00	0.00
User Defined Parking	0					0.00	0.00	0.00	0.00
Total						193.96	11.46	0.00	434.67

9.0 Vegetation

Appendix FEIR-13

Proposed Signage and Traffic Safety for the NBC Universal Evolution Plan

transportation consulting, inc.

MEMORANDUM

TO:	Mark Lyum NBC Universal
FROM:	Patrick A. Gibson, P.E., PTOE Sarah Drobis, P.E. Geetika Maheshwari, P.E., LEED AP
DATE:	July 28, 2011
RE:	Proposed Signage and Traffic Safety for the NBCUniversal Evolution Plan **Ref: J1005**

As discussed in Section II, Project Description, of the Draft Environmental Impact Report (Draft EIR) for the NBC Universal Evolution Plan (Project), the Project proposes two specific plans, the Universal City Specific Plan for that portion of the Project Site within the City of Los Angeles and the Universal Studios Specific Plan for that portion of the Project Site within the unincorporated territory of the County of Los Angeles. The proposed Specific Plans include signage regulations organized by various proposed sign districts (Sign Districts). Six Sign Districts are proposed in the Universal City Specific Plan area, as shown in Figure 20 on page 323 in the Draft EIR. The Universal City Specific Plan Sign Districts include the following:

- Sign District 1A – Mixed-Use Sign District
- Sign District 1B – Universal City Town Center Sign District
- Sign District 2A – Studio Administration Sign District
- Sign District 2B – Studio Technical Lot Sign District
- Sign District 2C – Universal City Southern Entry Point Sign District
- Sign District 2D – Universal City Barham Sign District

Four Sign Districts are proposed in the Universal Studios Specific Plan area, as shown in Figure 19 on page 317 of the Draft EIR. The Universal Studios Specific Plan Sign Districts include the following:

- Sign District 1 – Lankershim Edge Sign District
- Sign District 2 – Northern Edge Sign District
- Sign District 3 – Studio and Entertainment Sign District
- Sign District 4 – Visitor Gateway Sign District

Various types of signs are proposed within each district, including electronic message signs and supergraphic signs in some districts.

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As discussed on page 653 in Section IV.B.1, Traffic/Access – Traffic/Circulation, of the Draft EIR, potential vehicular hazards created by freeway facing signs were considered in the Draft EIR, but were not a potential impact as the Project would not contain freeway facing signs. To augment the discussion in the Draft EIR, Gibson Transportation Consulting Inc. has prepared this memorandum which details its assessment of the proposed Universal City Specific Plan and proposed Universal Studios Specific Plan signage regulations and whether they present potentially significant traffic safety impacts on the surrounding street system. As part of this assessment, potential sign locations, types and limitations, adjacent roadways, and freeways in the Study Area were analyzed and published studies and articles concerning the potential impacts of signage on traffic safety were reviewed. Based on an assessment of the proposed signage plans and regulations, it was concluded that most of the permitted sign types – such as awning signs, banner signs, blade signs, building identification signs, internal signs, etc. – are primarily static signs and, combined with size limitations outlined in the regulations, are not anticipated to have a potentially adverse impact on motorists. Further, the electronic message and supergraphic signs proposed in some locations, will not pose a significant traffic safety impact to freeway or street drivers given the Specific Plans' limitations, the Project Site's relationship to adjacent streets and freeways, and the unique characteristics of motorists entering the Project Site and traveling on adjacent public street corridors.

POTENTIAL IMPACTS ON ADJACENT ROADWAYS

Much of the Project's proposed signage is intended for view from within the proposed Specific Plan areas, rather than from public streets. The signage will be part of the entertainment experience and orient visitors within CityWalk and theme park areas. Motorists within the Specific Plan areas that permit supergraphic and/or electronic message signs will be driving at a low rate of speed on internal, private streets. As such, signage oriented to the Specific Plan areas' interiors would not create a potentially significant traffic safety hazard.

The Specific Plan areas also border on public streets and a freeway where motorists may be traveling at higher rates of speed. The potential impact of the Specific Plans' proposed signage on traffic safety on these routes is analyzed below.

<u>US 101 Freeway</u>

Sign Districts 2B (Studio Technical Lot), 2C (Southern Entry Point Sign) and 2D (Barham Sign) of the proposed Universal City Specific Plan and Sign District 4 (Visitor Gateway) of the proposed Universal Studios Specific Plan are located in close proximity to the US 101. Due to the existing topography in the area, the US 101 is situated below and depressed along the Project's property frontage. Accordingly, many of the signs located in those sign districts near the US 101 would not be designed to be visible to motorists on the freeway.

In addition, animated signs and electronic message signs are prohibited in Universal City Specific Plan Sign District 2B, which is immediately adjacent to the US 101. Universal City Specific Plan Sign Districts 2C and 2D, while permitting such signs, will contain primarily area identification signs (e.g., the Universal City Southern Entry Point) and are intended for viewing by motorists entering the Specific Plan areas. Because the electronic message signs and supergraphic signs permitted in the sign districts with freeway exposure would not be primarily viewed by freeway motorists, these signs would not create a potentially significant traffic safety hazard.

Barham Boulevard

Universal City Specific Plan Sign Districts 1A (portion), 1B, and 2D are located near Barham Boulevard. Signs permitted within Sign Districts 1A and 1B are generally on-site signs that identify areas, buildings, and businesses. Animated signs, electronic message signs, and supergraphic signs, among others, are prohibited within Sign Districts 1A and 1B. Although some provisions for entertainment signs along Barham Boulevard and Lakeside Plaza Drive are included, those signs would be static and limited to 500 square feet (sf) in size. Given the prohibition of supergraphic and electronic message signs and size limitations on the other permitted signs within Sign Districts 1A and 1B, signs near Barham Boulevard would not create a potentially significant traffic safety hazard.

Universal City Specific Plan Sign District 2D would be visible to motorists near the intersection of Barham Boulevard & Cahuenga Boulevard and would not be viewed by freeway motorists. Only one area identification sign is permitted in this district as a replacement for an existing sign. The existing sign serves to identify and start the visitor experience for the theme park guests entering the property from the southeast. While that area identification sign could be animated or contain electronic messages, the Specific Plan limits the illumination of electronic message signs and illuminated animated signs to no more than three foot-candles from sunset to 10 p.m. and no more than two foot-candles from 10 p.m. to 2 a.m., as measured at the property line of the nearest residentially zoned property outside the combined boundaries of the Specific Plans. Further, the electronic message signs and illuminated animated signs shall be turned off from 2 a.m. to 7 a.m. Given the purpose of the single sign located in Sign District 2D, its orientation towards motorists at an intersection seeking direction relative to the theme park and CityWalk, and illumination restrictions, the sign in Sign District 2D would not create a potentially significant traffic safety hazard.

Cahuenga Boulevard

Universal City Specific Plan Sign District 2C, which consists of a single sign located near the intersection of Universal Studios Boulevard & Cahuenga Boulevard, would be visible to motorists near this intersection. While in proximity to the US 101, given the topography and the orientation of the single sign, it would not be viewed by freeway motorists. The single sign in this district will be a two-sided area identification sign that will replace an existing sign at the same location and of the height. The existing sign is located north of and perpendicular to Cahuenga Boulevard with limited visibility beyond the intersection and it serves to orient guests to destinations within Universal City. While the sign could be animated or contain electronic messages, the Specific Plan limits the brightness of electronic message signs and illuminated animated signs to no more than three foot-candles from sunset to 10 p.m. and no more than two foot-candles from 10 p.m. to 2 a.m., as measured at the property line of the nearest residentially zoned property outside the combined boundaries of the Specific Plans. Further the electronic message signs and illuminated animated signs shall be turned off from 2 a.m. to 7 a.m. Given the purpose of the single sign located in Sign District 2C, its orientation towards motorists at an intersection seeking direction relative to Universal City, and illumination restrictions, this sign would not create a potentially significant traffic safety hazard.

Lankershim Boulevard

Universal Studios Specific Plan Sign District 1 and a small portion of Universal City Specific Plan Sign District 2A are located along Lankershim Boulevard.

Universal City Specific Plan Sign District 2A includes the portion of Lankershim Boulevard and Universal Hollywood Drive that serves as the main west entrance to CityWalk and the theme park. There is an existing electronic marquee sign at this location. The remainder of Sign District 2A is located along Universal Hollywood Drive and is primarily internal to the Project Site. The signs in Sign District 2A would be directed toward those motorists and pedestrians entering or already within the Specific Plan area and would be part of the overall entertainment experience at Universal Studios. Motorists viewing most of these signs would be traveling at low rates of speed on the private, internal streets within this area. As such, the signage proposed for Sign District 2A would not create a potentially significant traffic safety hazard. Further, Universal Studios Specific Plan Sign District 1's signs directed towards visitors entering the site or already within the site would not directly impact motorists along Lankershim Boulevard.

While Universal Studios Specific Plan Sign District 1 and a small portion of Universal City Specific Plan Sign District 2A are located along Lankershim Boulevard. Traffic along Lankershim Boulevard is unique because this portion of Lankershim Boulevard primarily serves commuters and visitors to Universal Studios. Commuters using Lankershim Boulevard are "repeat customers" along the route and are accustomed to seeing the existing signage in and around the Universal City area and the Burbank Media District. Accordingly, the signage permitted under the Specific Plans would not introduce a substantially greater impact to traffic safety given the signage already present in the vicinity.

Additionally, most of the signs would be directed toward the visitors to CityWalk and the theme park and would provide information (e.g., directions) to these visitors and be part of the visitor experience. Thus, the proposed electronic message signs and supergraphic signs located along Lankershim Boulevard would not create a potentially significant traffic safety hazard compared to the existing conditions, or to create a cumulatively considerable increase in traffic safety impacts.

LITERATURE SEARCH

A review of the available literature on this topic indicates that most of the research conducted on the potential effect of signs on traffic safety is related to off-site signs, particularly those directed towards freeways, and the results have been mixed and deemed inconclusive due to insufficient data to scientifically support a relationship between electronic message signs and accidents.

The Debate over Digital Billboards: Can New Technology Inform Drivers without Distracting Them? (Michelle S. Birdsall, Institute of Transportation Engineers Journal, April 2008), provides an overview of the background and capabilities of digital billboards and signs, current regulations surrounding the technology's usage, and the contrasting opinions about the billboards' potential effect on traffic safety.

One study referenced in the article (*A Study of the Relationship Between Digital Billboards and Traffic Safety in Cuyahoga County, Ohio*, Foundation for Outdoor Advertising Research and Education, 2007) found no statistical relationship between accidents and billboards, conventional or digital and stated, "The accident statistics on sections of Interstate routes near billboards are comparable to the accident statistics on similar sections that have no billboards."

Another study (*Driving Performance and Digital Billboards*, Foundation for Outdoor Advertising Research and Education, 2007) showed that several driving performance measures in the presence of digital billboards are similar to those associated with everyday driving, such as the on-site signs located at businesses.

CONCLUSIONS

The proposed Universal City Specific Plan and Universal Studios Specific Plan limit the number and type of signs in each district of the Project Site. The location and types of proposed signage and the area's topography, especially the depressed configuration of the US 101, makes it very unlikely that these signs will have any effect on freeway traffic safety.

The Specific Plans do allow electronic message signs and supergraphic signs to face city arterial streets, primarily Lankershim Boulevard and a small portion of Barham Boulevard and Cahuenga Boulevard. These corridors serve two primary user groups: (1) "repeat customer" daily commuters and (2) visitors to the Universal Studios theme park and City Walk. Commuters using these corridors live and work in an area where these types of signs are commonplace and entertainment-related signs are part of the visual landscape. Visitors to the theme park and retail attractions are looking for guide signs and are expecting these types of signs as part of their entertainment experience. Accordingly, electronic message and supergraphic signs located along Lankershim Boulevard, at the corner of the intersection of Barham Boulevard & Cahuenga Boulevard, and along Universal Studios Boulevard near Cahuenga Boulevard would not pose a significant traffic safety impact given the anticipated low traffic speeds and the special characteristics of the drivers using the public street corridors in question.

As such, the proposed signage will not have a significant traffic safety impact on arterial streets or adjacent freeways.